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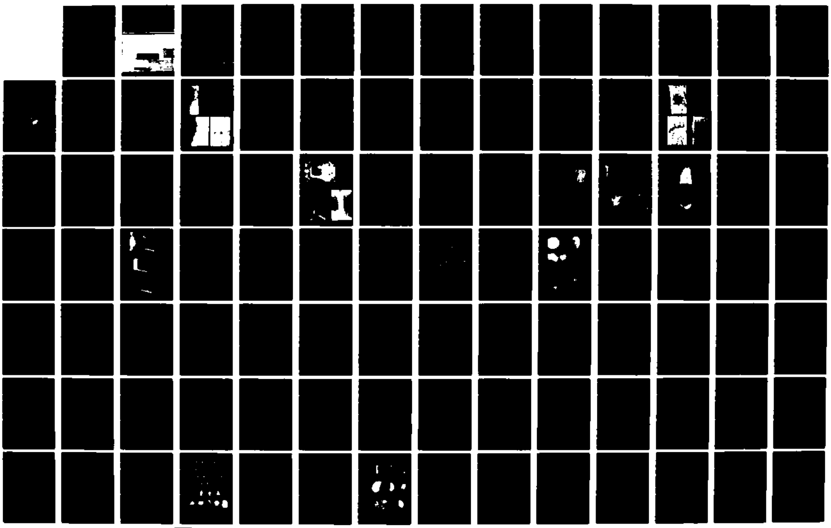

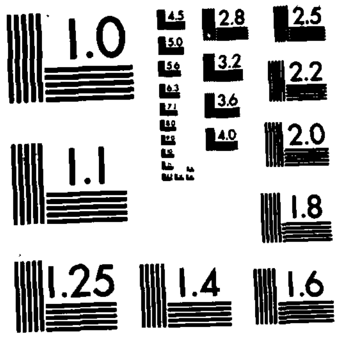

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI

TOMBIGBEE RIVER MULTI-RESOURCE DISTRICT

CONTRACT NO. DACW01-81-M-A492

EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI

TOMBIGBEE RIVER MULTI-RESOURCE DISTRICT

CONTRACT NO. DACW01-81-M-A492

Prepared by:

Cultural Resource Services, Inc.
1955 Cliff Valley Way, N.E. Suite 220
Atlanta, Georgia 30029

For:

U. S. Army Engineer District
Mobile-Corps of Engineers
P.O. Box 2288, Mobile, Alabama 36628

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Robert S. Webb
Robert S. Webb, Director
Principal Investigator

Stephen H. Savage, Archeologist
Principal Author

ABSTRACT

Evaluative testing was conducted at sites 22MO676 and 22MO677 in Monroe County, Mississippi between June 30 and July 10, 1981 by Cultural Resource Services, Inc. of Atlanta, Georgia. The sites are scheduled to be impacted by construction and operation of the Aberdeen Lock and Dam section of the Tennessee-Tombigbee waterway. The contract was released by, and results reported to, the Mobile District Corps of Engineers.

Testing methods employed at the sites included the implementation of controlled surface collections, auger and shovel testing, machine stripping of selected transects, and hand excavation of five one-by-two meter test units.

Results indicate that intact midden deposits are present at 22MO677 where numerous cultural features were exposed. No such deposits or features were discovered at 22MO676. Data analysis reveals that 22MO677 was occupied extensively during the Terminal Miller subphase, with a minor Miller I component also being identified. Data from 22MO676 indicate only a minor Early Miller IIIa component.

Various analytical techniques allowed two distinct, Terminal Miller ceramic assemblages to be articulated at 22MO677, as well as the definition of lithic reduction/use areas.

In addition, a limited floral and faunal analysis suggests that the economy of 22MO677 during the Terminal Miller subphase was based on hunting/gathering strategies.

CRS recommends that an excavation phase be implemented at 22MO677 to mitigate adverse impacts following the research goals and methodological considerations put forth in this report. It also recommended that 22MO676 receive full cultural clearance since no significant data can be recovered from this site.

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ACKNOWLEDGEMENTS

The staff of CRS would like to express our thanks to Dr. Judith A. Bense and the staff of the University of West Florida Field Office, in Fulton, Mississippi. Dr. Bense and her staff provided needed background information, supplied the CRS team with a sludge pump for water screening, gave us access to the University of West Florida ceramic type collections, and gave us moral support as well.

Mr. Ernie Seckinger, of the Mobile Corps of Engineers, supplied much of the background data used in formulating research goals throughout the duration of the project and provided guidance during fieldwork operations.

Mr. H. K. Stegall, of Smithville, Mississippi, operated the heavy machinery for us.

I. INTRODUCTION

The following report discusses the various aspects of an evaluative testing program conducted at Sites 22MO676 and 22MO677 in Monroe County, Mississippi. Both sites lie within the Tombigbee River Multi-Resource District (river mile 410.2), which consists of a 130 mile long, 5 mile wide corridor along the Tombigbee River and traverses ten counties in the states of Alabama and Mississippi.

Sites 22MO676 and 22MO677 were discovered by a Mississippi State University survey team in mid 1975 (Blakeman 1975) during their examination of the Aberdeen Lock and Dam area and the Canal Section of the Multi-Resource District. Objectives behind this survey included the identification of archeological sites which may yield significant data concerning regional prehistory. Such sites would then be scheduled for testing so that adverse impacts imposed by the construction and operation of the Aberdeen Lock and Dam could be mitigated.

Originally, Blakeman (1975:16) described these sites in a computerized format giving areas (22MO676 - 2.0 acres; 22MO677 - 1.5 acres) soil associations (both alluvial) midden depth (both unknown) and site significance (both positive). Blakeman (1975:74) later describes these two sites as possibly representing transitional Woodland-Mississippi occupations, a cultural period which is not well understood at present.

Based on Blakeman's data and site inspections by Corps officials, sites 22MO676 and 22MO677 were scheduled for testing. On May 28, 1981, the Mobile District Corps of Engineers authorized Cultural Resource Services, Inc. of Atlanta, Georgia to proceed with evaluative testing of these sites in order to determine what kinds of information could be extracted from these sites and whether further more extensive work is necessary. This report includes a discussion of research orientations, methodological approaches, field and laboratory work, analytical results and recommendations for future work.

II. ENVIRONMENTAL SETTING

Sites 22M0676 and 22M0677 are located within the portion of the Tennessee-Tombigbee Waterway scheduled to be impacted by construction of the Aberdeen Pool and Canal, in south-central Monroe County, Mississippi.

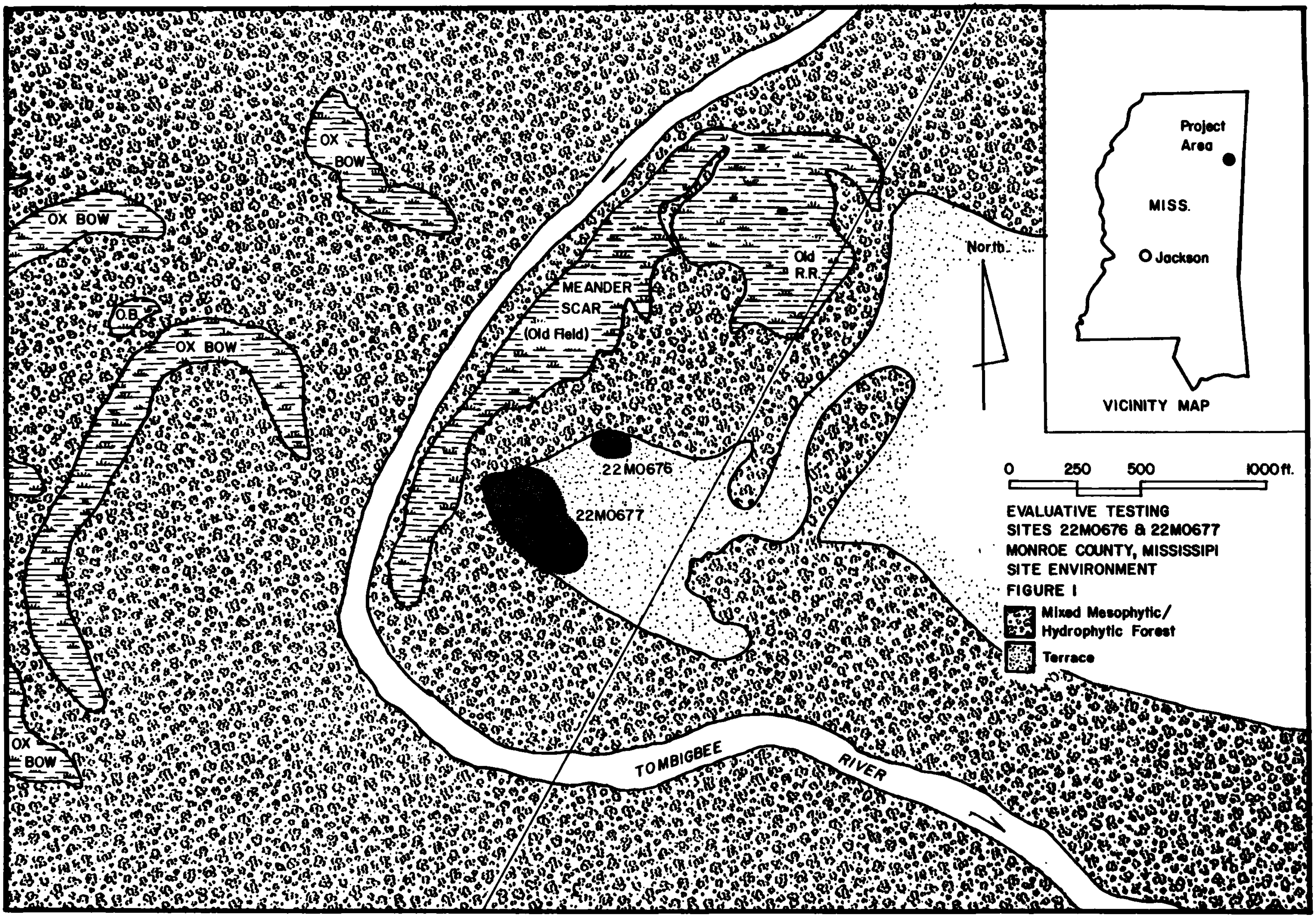
Monroe County is located entirely within the Gulf Coastal Plain physiographic province and has been further divided into two regions. The Tombigbee River Hills comprise approximately the eastern 60 percent of the county, while the Black Belt, or prairie region, occupies the western 40 percent. The county is entirely within the Tombigbee River drainage system. The Tombigbee River Hills region is dissected by numerous river valleys and streams, among which are the Sipsey and Buttahatchie Rivers, Weaners Creek, and the Tombigbee River.

Geologic formations present at the surface in various parts of Monroe County consist of the Tuscaloosa, Eutaw, and Selma Chalk formations, originating in the Upper Cretaceous age of the Mesozoic era (Murphree, et al. 1966:1'^). Of these formations, the Tuscaloosa is the oldest and comprises sand, gravel, ferruginous sandstone, conglomerate, clay, clay shale, lignite, clay ironstone, and other minority materials, overlying formations of the Paleozoic era. During the prehistoric period, these Tuscaloosa gravels provided the primary lithic raw material for aboriginals living in the region. The exploitation of lithic raw material will be more fully explored in the section concerning the prehistory of the tested sites.

The climate in Monroe County may be described as warm and humid. Temperatures range from an average low of 35.8°F (2.1°C) in January, with a minimum temperature of 17°F (-8.3°C), to an average high of 93.6°F (34.2°C) in August, with a maximum of 102°F (38.9°C). Rainfall ranges from a low of 2.6 inches (6.6 cm.) in October to a high of 6 inches (15.2 cm.) in March and averages 51.8 inches (131.6 cm.) per year (Murphree, et al. 1966:119).

Both of the investigated sites lie in the floodplain of the Tombigbee River on a 15 meter terrace located east of river mile 410.2 above the east bank of the last major western loop of the river before its junction with Mattubby Creek. The floodplain at this point is characterized by numerous meander scars and oxbow lakes (Fig. 1). One meander scar runs north-east-southwest immediately to the west of the site, forming part of a lower terrace system. The sites are located in the Bibb-Mantachie-Alluvial soil association and are comprised entirely of alluvial soils. These soils may be described as ranging from sand to clay, either acidic or alkalinic, and moderately to poorly drained. Most of the soils of this type in the county are on slopes of less than two percent, and are subject to frequent, seasonal inundation. The alluvial soils are well suited for mixed mesophytic to hydrophytic hardwoods such as Tupelo-gum, cypress, overcup oak, blackgum, water hickory, bitternut hickory, water oak, swamp chestnut oak, cherrybark oak, American beech, poplar, maple and elm (Murphree, et al. 1966:117). Most of the alluvial lands are still forested, but in the last 20 years an increasing demand for agricultural land has resulted in the clearing of large tracts (including the project area).

Underlying the alluvial soils is a layer of blue clay which is Pleistocene in origin (Mike Rodeffer, pers. comm. 1981). Immediately above the Pleistocene clay is a perched water table which was tapped just west of the site for water screening purposes. The presence of the water table does not affect the preservation of the site, since it is approximately 5 to 8 meters below ground at the 15 meter-terrace level. It should be stressed, however, that the subjectivity of the site to inundation and extreme fluctuations of moisture content have limited the preservation potential of certain organic materials such as bone and wood.



EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPI
SITE ENVIRONMENT
FIGURE I

Another important facet of the environmental setting during prehistoric times would have been the availability of food resources. Resources available to the aboriginal population were abundant in the area and could be obtained from a variety of riverine and terrestrial sources.

> As of 1963 the waters of the Tombigbee were still regarded as unpolluted and fish population surveys indicated a fish biomass of 621 kg/hectare (3381 lb/acre) with 27 fish species represented. . . . Also available from the Tombigbee and its tributaries are as many as 18 species of turtles which occupy both stillwater and slackwater habitats. . . . Forty-six species of mussels have been identified in the Tombigbee, and 20 species of gastropods were identified from the Tibbee Creek faunal samples alone.
>
> . . . Among the available mammalian fauna were those typical of the southeastern United States, the most prominent being deer, puma, bobcat, red wolf, red and grey foxes, raccoon, opossum, rabbits, squirrels, beaver and otter. The woodchuck, no longer found within the area today, has been identified among the faunal remains recovered from the nearby Cofferdam site (O'Hear, et al. 1979:11-12).

Numerous varieties of edible plants are also available in the area and undoubtedly filled a significant niche in the prehistoric subsistence system. Many of the mesophytic and hydrophytic hardwoods found associated with alluvial soils were significant mast-producing species such as the oaks and hickories. Additional food producing plants such as the blackberry, paw paw, muscadine, huckleberry and crab apple presently form a large portion of the understory associated with the mixed hardwood forests in the project area. These resources were no doubt of paramount importance during the Archaic period, with its dependence upon hunting/gathering economies, as well as the later Woodland periods, which, despite the introduction and growth of agriculture, continued to utilize the subsistence strategies worked out in the earlier period.

III. ARCHEOLOGICAL TESTING

Research Design

The formulation of a testing program for Sites 22MO676 and 22MO677 was designed to obtain the maximum amount of usable data regarding site limits, both horizontally and vertically, site type and occupation periods, site integrity, and inter- and intra-site relationships, with a mimimal amount of adverse impact. This goal was to be achieved in such a manner as to allow the data acquired to be used in planning a subsequent phase to mitigate adverse effects, if such an operation was deemed necessary.

Several testing techniques were employed by CRS archeologists in order to reach these objectives. These methods included: 1) the preparation of an accurate topographic map of the two sites; 2) controlled surface collections carried out over the entire extent of both sites; 3) shovel cut and hand turned bucket auger transects along selected grid lines; 4) placement of several machine strip trenches at locations where, on the basis of the surface collections, subsurface features seemed likely to occur; 5) hand excavation of one-by-two meter test units at points along the machine stripped trenches where cultural features were revealed; and 6) aquisition of carbon samples to allow for future Carbon 14 analysis. For a more complete description of the research goals involved in the testing program, refer to Appendix A, the Research Design and Methodological Considerations.

Fieldwork

In keeping with the methodological considerations discussed above and in Appendix A, a grid system was superimposed over the entire site universe using a transit, stadia rod and tapes. The grid interval was ten meters and was tied into an offsite datum point. At the time of the fieldwork phase the sites were planted in soybeans (Plates 1 and 2), and the grid was laid out running parallel and perpendicular to the rows, in order to facilitate the

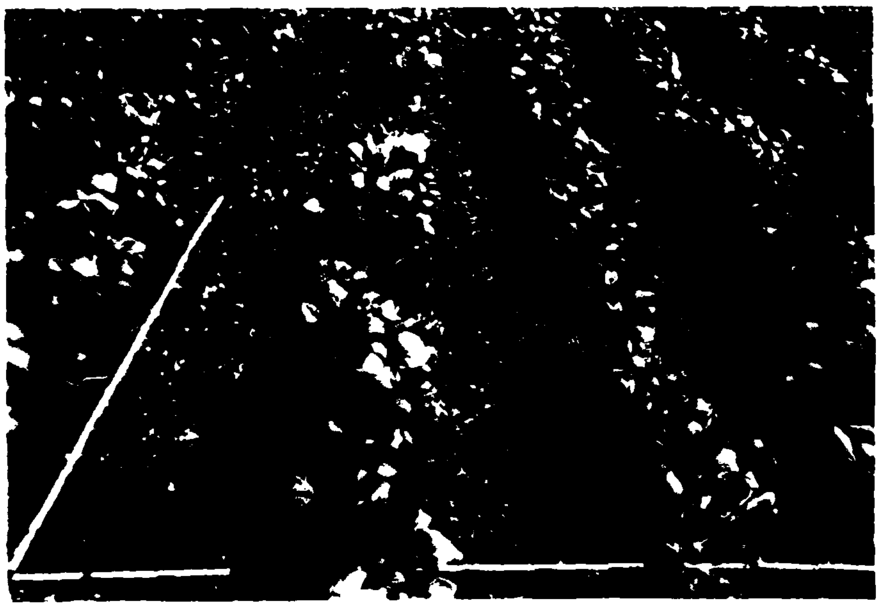


PLATE 1, UPPER LEFT: Site 22MO676 is Pictured, Looking Toward Grid East. The Strip Trench is Already in Place.

PLATE 2, ABOVE: Site 22MO677 is Pictured, Looking Southwest Toward the Most Intensively Utilized Area.

PLATE 3, LEFT: Two-by-Two Meter Controlled Surface Collection Units Were Placed at Grid Intersections. The View is to Grid West.

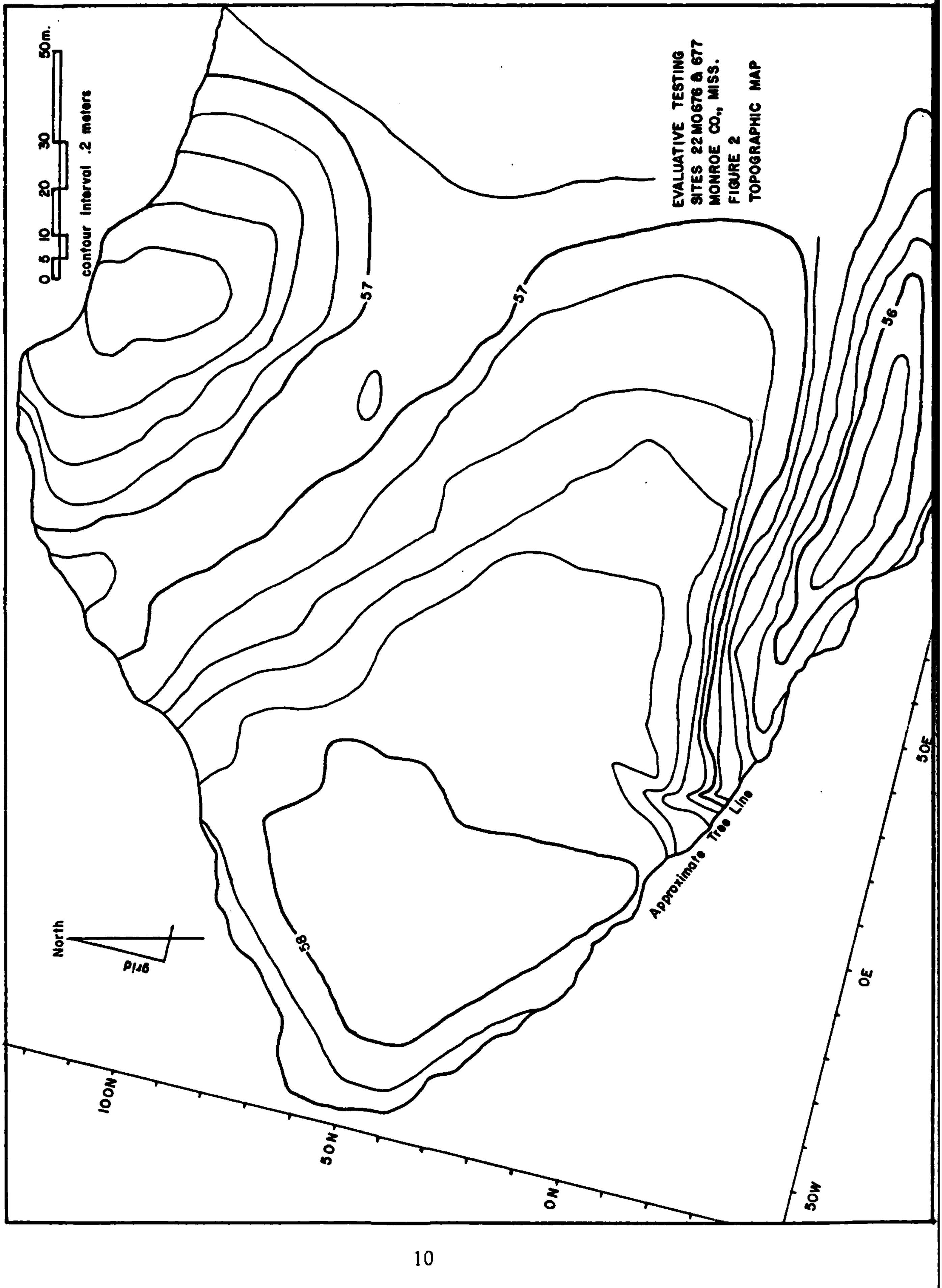
EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
PLATES 1-3

surface collections. This resulted in a grid north lying 15 degrees east of magnetic north (Fig. 2). Each ten-by-ten meter square was given Cartesian coordinates based on its southwest corner (e.g., 20N30W). Elevations were taken from furrows nearest each grid intersection over the entire site, and a topographic map was prepared from the data acquired (Fig. 2).

Surface collections were made in two-by-two meter squares located in the southwest corner of each ten meter grid, thus providing a four percent sample collection for each site (four square meters collected from each 100 square meters (Plate 3). All cultural material contained in each collection unit was recovered, as well as all lithic materials and organics which were not obviously derived from the present soybean crop. These materials were then bagged and identified by the Cartesian coordinate established for the grid unit in which the collection was made. The collections were made over a two-day period, and rain occurred during the evening preceeding each day, greatly enhancing artifact visibility. This collection strategy was designed to systematically and statistically cover a site area where no clear site boundary data were available. It appears to be both efficient and accurate, as well as providing an excellent framework within which testing can be structured.

The materials recovered during the controlled surface collection phase of the project were then subdivided into the following four broad categories: 1) ceramics; 2) lithic materials (worked or not); 3) burned or fired clay pellets; 4) coal and slag. This analysis was performed during the collection phase and was intended only as a rough guide to overall site patterning. A more refined analysis system was instituted during the lab phase of the project, which will be described below in the section, "Laboratory Methods and Analysis."

Information recovered during this rough analysis was then plotted out on

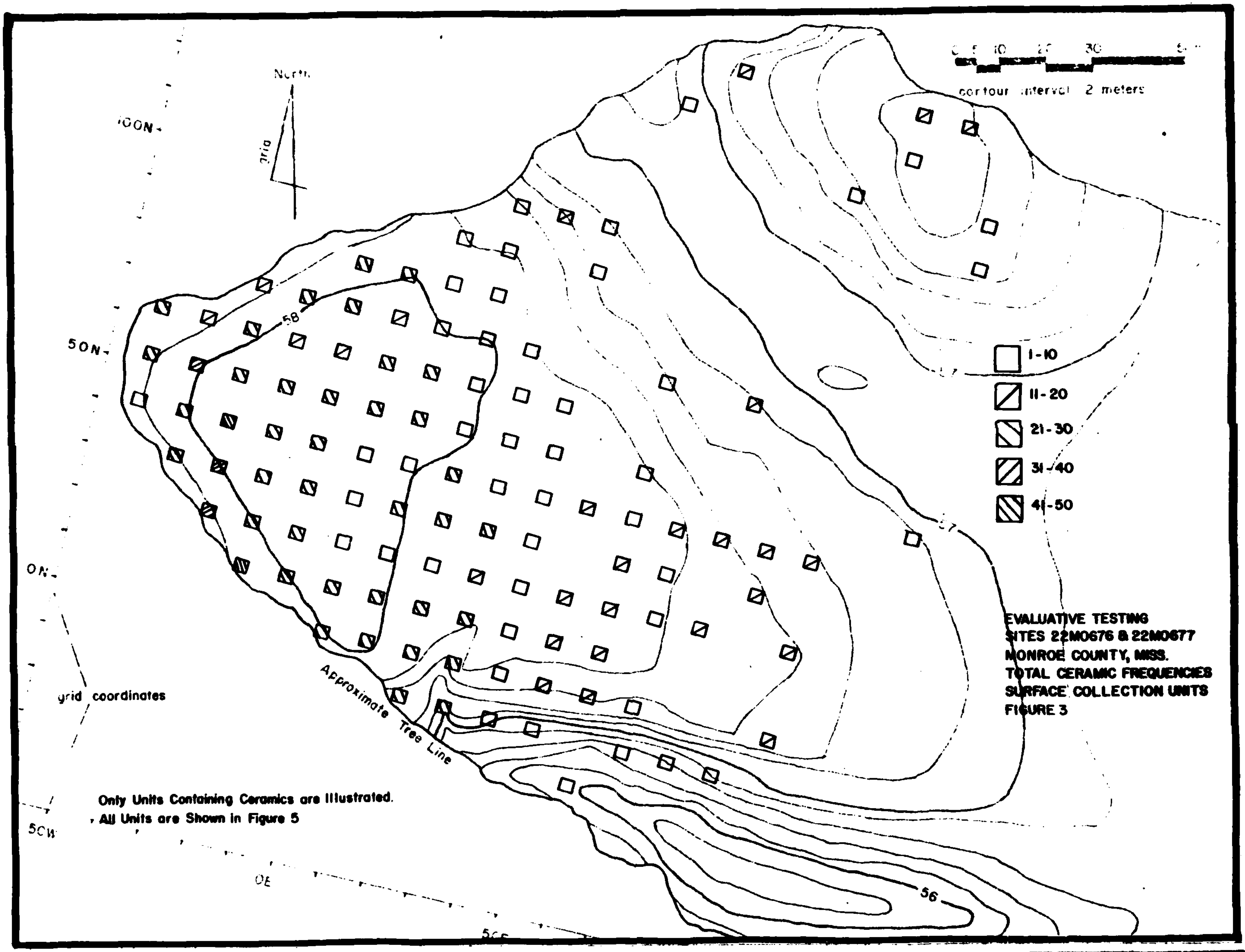


EVALUATIVE TESTING
SITES 22MO676 & 677
MONROE CO., MISS.
FIGURE 2
TOPOGRAPHIC MAP

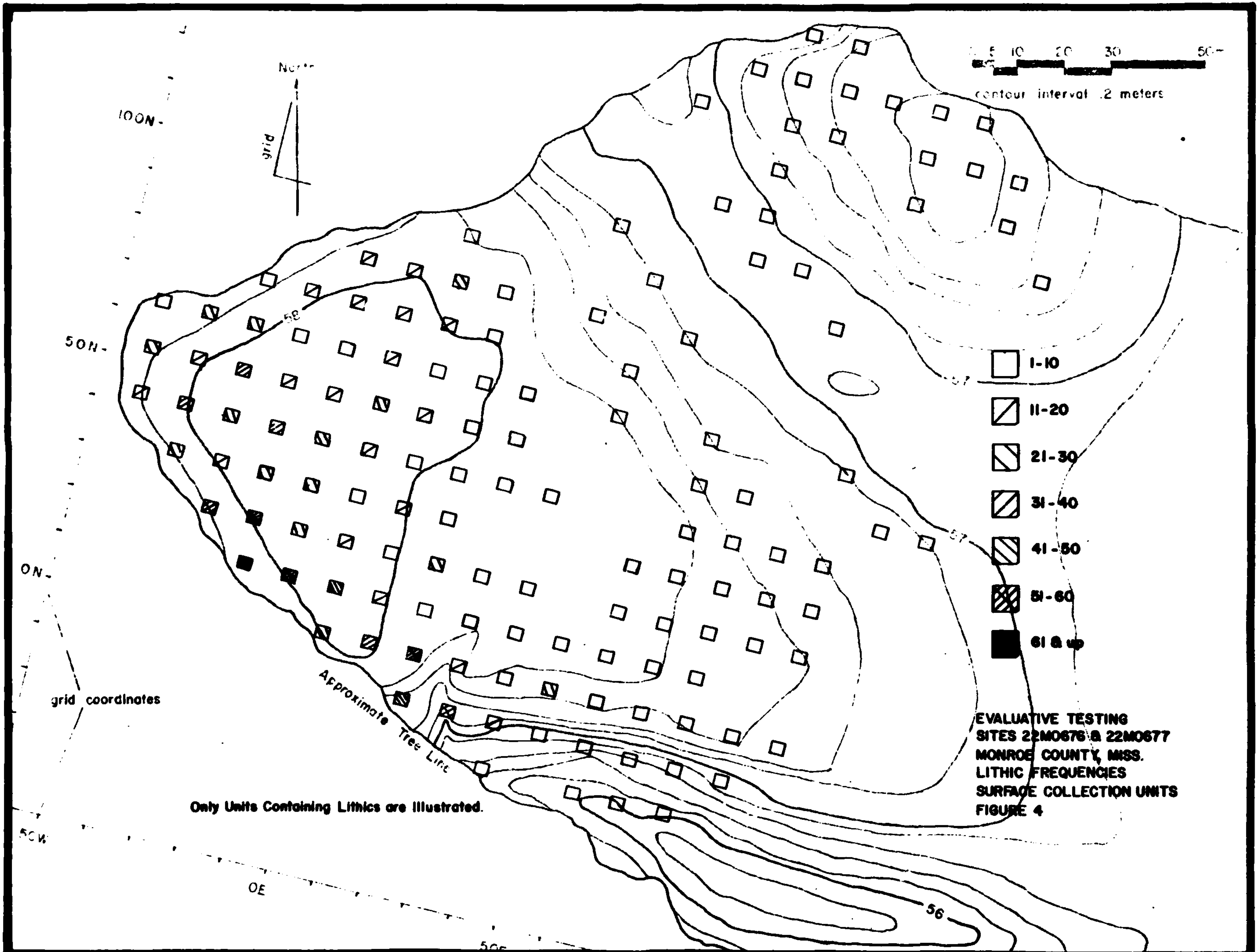
maps of the site showing the distribution of the collection units (Figs. 3-5). This procedure allowed decisions made regarding placement of auger and shovel test transects and machine stripped trenches to be based on empirical evidence rather than supposition.

The distribution of lithics and ceramics shows that the most intensively utilized portion of Site 22MO677 is located in the western and southwestern portion of the field between the 58.1 and 57.9 meter elevations (Fig. 3-5), while a lighter surface scatter covers most of the lower plateau between the 57.8 and 57 meter elevations. The site occupies approximately 1.38 hectares, extending 160 meters NW-SE and 110 meters NE-SW. Site 22MO676 is represented by a light scatter of lithic and ceramic material which covers a small knoll to the northeast of 22MO677. Elevations at this site ranged from 57.9 to 57 meters M.S.L. The site covers approximately 0.3 hectares, extending 50 meters N-S by 70 meters E-W.

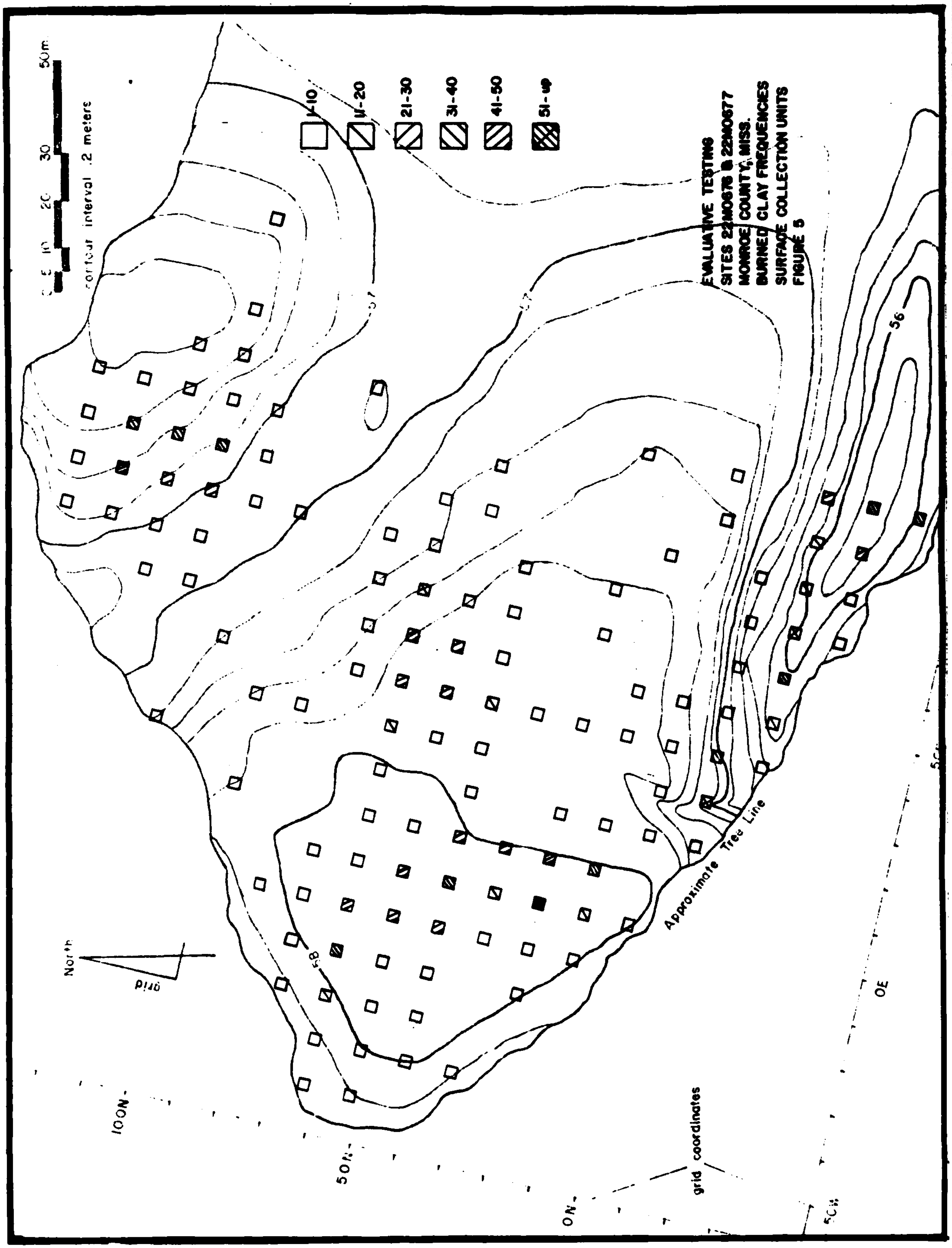
Agricultural activity in the past ten years--the site was forested as recently as 1970 according to Roy Agee (pers. comm. 1981)--has no doubt contributed to the dispersal of some artifacts away from their points of origin, but Talmadge and Cheslar (1977) have noted the possibility of obtaining significant data from small or disturbed sites based on surface distribution, taking the effects of plow scatter into account. Judith Bense (pers. comm. 1981) has also noted the tendency of artifact distributions at other sites in the upper central Tombigbee floodplain to be concentrated at the highest part of a given area and for small changes in elevation to play a significant role in determining original site loci. Note (Fig. 3-5) that no cultural material was recovered from the shallow depression separating the two sites. The material which was located off the edge of the plateau to the south may be attributed to plow drag, and the limits of both sites should be restricted somewhat, probably to above the 57.6 meter elevation in most



EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISS.
TOTAL CERAMIC FREQUENCIES
SURFACE COLLECTION UNITS
FIGURE 3



EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISS.
LITHIC FREQUENCIES
SURFACE COLLECTION UNITS
FIGURE 4


EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISS.
BURNED CLAY FREQUENCIES
SURFACE COLLECTION UNITS
FIGURE 5
1-10
11-20
21-30
31-40
41-50
51-up
contour interval .2 meters
50m
Approximate Tree Line
North
grid
grid coordinates
100N
50N
0N
0E
56
58

places.

Three-inch, hand-turned bucket auger tests (Plate 4) were placed at each grid intersection along the entire 40N line and the 20W line and at alternating intersections on the 10N line. These transects were chosen because of the high artifact frequencies exhibited in collection units (Fig. 2-5). Auger tests were terminated at the final depths indicated below. Unstructured shovel tests were advanced in the low-lying area off the southern edge of the plateau, in hopes of revealing evidence of an aboriginal trash dump. Each shovel test was approximately 25 cm in diameter, 25 to 30 cm in depth, and were initiated from the base of the loose, freshly turned plowzone. The results of these tests are listed below.

<u>40N Line</u>

40N50W: 0 to 20 cm. Dark brown clay loam containing numerous charcoal flecks overlies mottled brown clay.

40N40W: 0 to 25 cm. Very dark brown clay loam contains numerous charcoal flecks and small potsherds and overlies the same brown clay as that in the 40N50W test.

40N30W: 0 to 25 cm. A brown sandy clay loam is present, which gradually lightens to mottled brown/yellow clay subsoil.

40N20W: 0 to 30 cm. Very dark brown to black clay loam contains numerous small sherds and chert flakes, as well as charcoal flecks. At 30 cm. the color lightens to brown clay loam which still contains charcoal and flakes. Yellow/brown clay subsoil is reached at 36 cm.

40N10W: 0 to 20 cm. Light brown clay loam contains one sherd and several small flakes. Mottled brown and yellow clay subsoil was revealed at 20 cm.

40N0E: 0 to 20 cm. Brown clay loam gradually becomes light brown and mottled with yellow clay at 28 cm.

PLATE 4, UPPER LEFT: Auger Testing at 22MO677; the View is to Northwest.

PLATE 5, ABOVE: Machine Stripping Operations; the View is to South. Site 22MO677.

PLATE 6, LEFT: Machine Stripping Operations; the View is to Grid West. Site 22MO677.

EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
PLATES 4-6

40N10E: 0 to 9 cm. Brown clay loam, as in the previous test, extends to 8-9 cm. At this point the soil becomes dark brown, and numerous charcoal flecks and pieces of burnt clay are encountered. At 14 cm. the color of the soil again becomes that of the upper level but contains the same charcoal and burned clay. Yellow/brown clay subsoil is encountered at 24 cm.

40N20E: 0 to 18 cm. Medium brown loam contains a small number of flakes. At 18 cm. a sandy brown clay is encountered, and the mottled brown/yellow clay subsoil is reached at 23 cm.

40N30E: 0 to 15 cm. Medium brown clay loam, which, at 15 cm. changes to a light brown sandy clay loam containing potsherds. Yellow/brown clay subsoil is encountered at 24 cm.

40N40E: Upper level is the same as in the previous test: the light brown sandy clay loam contains flakes and gradually changes to yellow/brown sandy clay and to yellow/brown clay subsoil at 28 cm.

40N50E: 0 to 16 cm. Medium brown clay loam contains no cultural material and changes to yellow/brown clay subsoil at 16 cm.

40N60E: 0 to 18 cm. The same medium brown clay loam contains flakes at this testing station. The soil becomes mottled with lighter yellow sandy clay loam between 18 and 25 cm. and becomes yellow/brown clay subsoil at the latter level.

40N70E: 0 to 23 cm. Medium brown sandy clay loam contains flakes in the upper 10 to 12 cm. and gradually changes to the yellow/brown clay subsoil with no discernible horizon.

40N80E: 0 to 8 cm. Medium brown sandy clay loam which begins to mottle with yellow clay at 8 cm. and continues in this manner until mottled yellow/brown subsoil is reached at 25 cm.

40N90E: 0 to 8 cm. Upper soil levels are identical to those in the previous test. Yellow/brown clay subsoil is reached at 20 cm.

40N100E: 0 to 12 cm. The same medium brown sandy clay loam continues to 12 cm. before becoming mottled with yellow clay and becomes the mottled subsoil at 20 cm.

10N Line

10N20W: 0 to 17 cm. Dark brown clay loam changing to yellow sandy clay at 17 cm. and to the mottled yellow/brown clay subsoil at 20 cm.

10N0E: 0 to 31 cm. The dark brown clay loam is friable at this station and contains charcoal flecks and flakes. At 31 cm. the soil becomes mottled with yellow clay, but this level changes to brown clay subsoil at 36 cm.

10N20E: 0 to 24 cm. Dark brown clay loam level similar to the previous test and containing charcoal and flakes, lightening to a yellow/brown transition level at 24 cm. which extends to brown clay subsoil at 26 cm.

10N40E: 0 to 25 cm. Dark brown clay loam lightens to mixed yellow/brown sandy clay loam at 25 cm. and mottled yellow/brown clay subsoil at 27 cm.

10N60E: 0 to 8 cm. Medium brown sandy loam changes to a yellow sandy loam containing flakes and continuing to yellow/brown clay subsoil at 29 cm.

10N80E: 0 to 17 cm. Medium brown sandy loam changes to the same yellow sandy clay loam as in previous tests at 17 cm. and continues to 25 cm., where yellow clay subsoil is encountered.

10N100E: 0 to 19 cm. Medium brown sandy clay loam containing charcoal flecks overlies a level of brown/yellow sandy clay loam. Yellow clay subsoil is reached at 29 cm.

20W Line

10NwOW: See 10N Line

20N20W: 0 to 24 cm. Dark brown fine sandy loam contains flakes and charcoal flecks and lightens to a medium brown at 24 cm. This medium brown level contains no cultural material and ends at 31 cm., where yellow/brown clay subsoil is encountered.

30N20W: 0 to 28 cm. Dark brown friable sandy clay loam does not exhibit cultural material at this point. At 20 cm. brown clay subsoil is encountered.

40N20W: See 40N Line

50N20W: 0 to 20 cm. Very dark brown to black clay loam contains flakes, sherds, and charcoal flecks. At 20 cm. the soil lightens to a medium brown clay loam and continues to 24 cm., where mottled yellow/brown subsoil is reached.

60N20W: 0 to 11 cm. Dark brown clay loam contains small amounts of charcoal flecks. At 11 cm. a grey/black sandy loam is encountered, which continues to 19 cm., where a thin (1 cm.) level of red ochre overlies brown sandy clay loam. Mottled yellow/brown clay subsoil is reached at 31 cm.

70N20W: 0 to 28 cm. A medium brown clay loam contains pieces of burned clay and charcoal flecks in the upper 10 cm. At 28 cm. the soil changes to a dark brown clay containing charcoal flecks, which gradually yellows until a mottled yellow/brown sterile clay subsoil is reached at 47 cm.

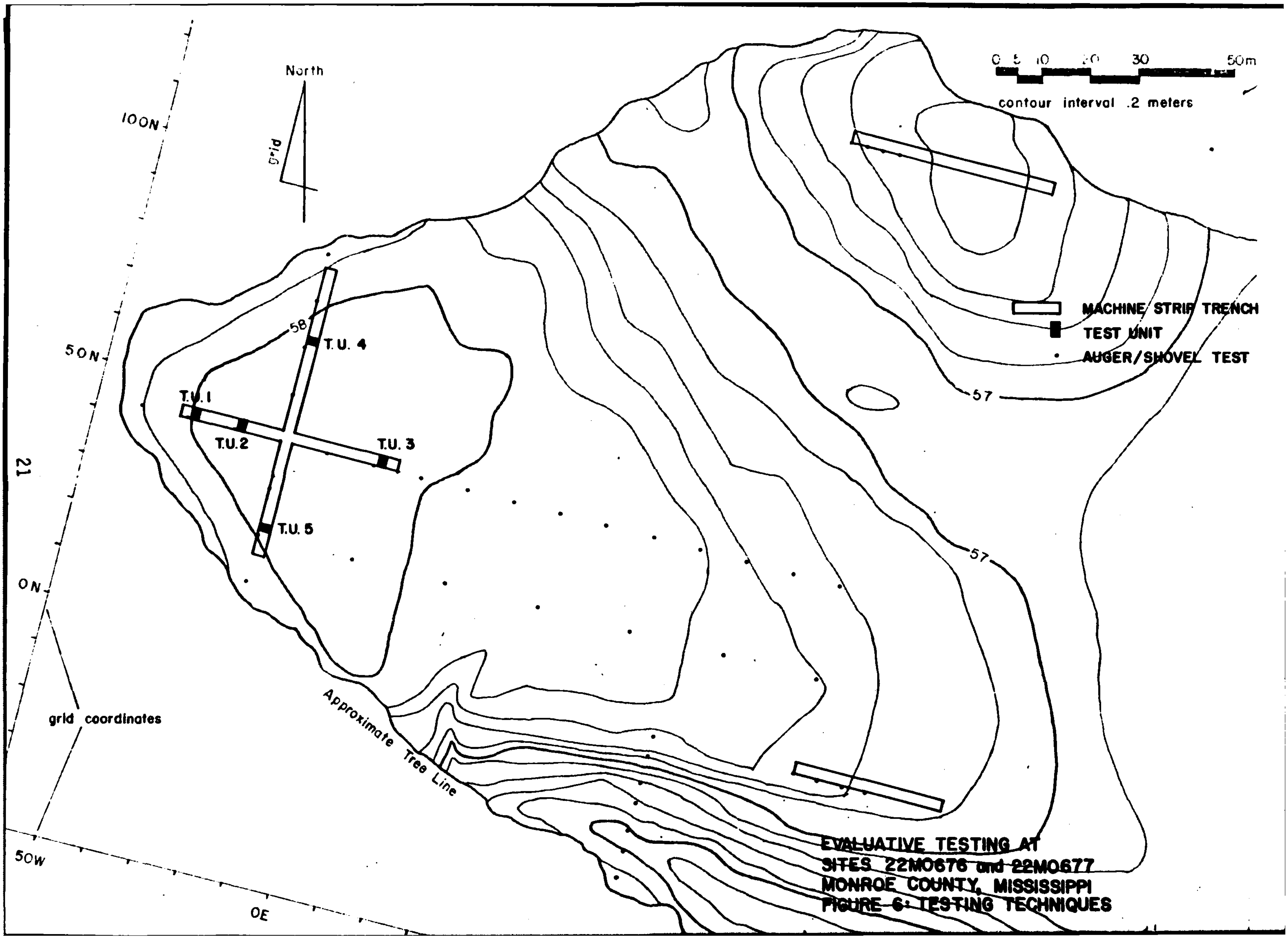
Shovel Tests

A series of unstructured shovel tests were advanced along the 70E transect line, between 30S and ON (southeast of 22MO677). The tests were placed at five meter intervals and failed to recover any traces of subsurface features or cultural material. A similar series was placed along the ON transect line between 100E and 130E (east of 22MO677), with similar results. Finally, a third line of shovel tests was placed along the 130N line between 80E and 120E (through 22MO676). A layer of dark brown clay loam which contained numerous pieces of burnt clay was found to extend from the surface to 10 to 12 cm. below the surface. Light brown sterile clay subsoil was uncovered at this depth.

Machine Stripping

Based on the information recovered in the auger and shovel testing transects and the surface concentrations revealed during the controlled collection phase, it was decided to open two machine stripped trenches at 22MO677 and one at 22MO676, in order to more fully expose areas where subsurface soil anomalies had been detected. One additional trench was opened off site along the ON line between 100E and 130E, to serve as a control trench (Fig. 6). These machine strip trenches were advanced with the use of a tractor and box blade (Plates 5 and 6). Through repeated passes the plowzone layer was stripped off each tested area, leaving two meter wide trenches. This method has been used extensively at other sites in the upper central Tombigbee with varying degrees of success. Judith Bense (pers. comm. 1981) reported that no rain had fallen for a number of weeks prior to the brief showers which occurred during the testing period. The drought conditions at the site thoroughly baked and hardened the soil to the extent that the brief showers which did occur did not penetrate deeply enough to allow ample ground softening to effectively utilize the box blade without incurring damage to intact material beneath the plowzone. While the box blade was very effective in removing large quantities of dirt and rapidly exposing large areas for visual inspection, several areas of what later proved to be intact midden deposits were disturbed by the scraping action. The cohesive nature of the midden deposits, coupled with soil dehydration, caused large, polygonal chunks of the midden to be dislodged in some areas of the strip trenches. CRS feels that the method itself is quite satisfactory but that care should be taken in its use, especially during the dry months of the year.

The two strip trenches placed at 22MO677 were oriented along grid lines. Trench One was placed along the 40N line between 50W and 0E, and trench Two was placed along the 20W line between 10N and 80N (Fig. 6). One trench was



EVALUATIVE TESTING AT
SITES 22MO676 and 22MO677
MONROE COUNTY, MISSISSIPPI
FIGURE 6: TESTING TECHNIQUES

placed along the major axis of 22M0676, along the 130N transect line between 80E and 120E.

Several points were clarified during the strip trenching operation:

1) The field containing the site has been cultivated in different directions. This became obvious when plowscars were detected running northwest-southeast, while the present crop row orientation is only 15 degrees east of north. The fact that the field has been cultivated in different directions tends to standardize the effects of plow drag over most of the site (except in the low-lying areas south of 22M0677). If plowing has occurred in only one direction, artifact scatters may be expected to become dispersed in a linear fashion (Talmadge and Cheslar 1977:26) but if the site is plowed in several directions, it would be logical to assume that artifact distributions will be dispersed in a non linear fashion, resulting in an inflated but probably more accurate assessment of site boundaries and intrasite activity areas.

2) The site has not been plowed with deep, subsurface cultivation equipment but with a disc-harrow type implement which does not disturb the soil as deeply. Use of the disc-harrow appears to be commonplace among soybean farmers in the upper central Tombigbee floodplain (Judith Bense, pers. comm. 1981). The resulting plowzone is shallow over most of the site, averaging between 10 and 15 cm. deep.

3) Large areas of apparently intact midden deposits lie directly below the plowzone. Three distinct midden areas were uncovered during the stripping of Trench One, and three additional areas were uncovered during the removal of the Trench Two material. It is not known whether these areas represent separate loci within the overall site context or whether they are part of a single, larger midden with local variations in soil moisture. The difficulties which were encountered in using the box blade prevented

additional, deeper scraping to be undertaken because the blade was pulling out large polygonal chunks of artifact laden midden deposits. The testing team was unwilling to jeopardize sections of intact midden in order to scrape deeper to determine if the zones were connected. This question remains open to further research and appears to be an area where finer excavation methods such as shovel shaving should be employed. In some areas portions of the midden have been disturbed by the plowing activity, but these areas are easily distinguished stratigraphically by the presence of high concentrations of burned clay in the upper 10 cm. of the midden deposits.

4) The origin of the burned clay lying on the surface may be traced to field clearing operations in the early 1970's. The field containing both sites was forested, as shown on SCS soil maps as late as 1958 (Murphree, et al. 1966:Sheet number 73). Apparently trees were cleared, piled in the higher regions of the field, and burned (Roy Agee, pers. comm. 1981). It is the heat from the field burning that probably accounts for the great quantities of burned clay on the two sites which have been mistaken for daub. The remains of at least two burned-out stumps were uncovered during stripping of the trench at 22MO676.

5) Site 22MO676 is a surface site only and is limited in its extent and occupation. As mentioned, the surface concentration is located on the small knoll to the northeast of 22MO677. No midden-like areas or indications of intact features or cultural materials were found below the plowzone during the trenching operations.

Excavation Units

Five areas were explored through the use of one-by-two meter hand excavated test units (Fig. 6, Plate 7-9). Each unit was placed with its long axis across the width of a machine stripped trench, in areas which exhibited soil discolorations or concentrations of cultural material. In the case of

PLATE 7, ABOVE: Unit 1, Level 2, Prior to Feature Excavation. View is to Grid North.

PLATE 8, UPPER LEFT: Unit 2, Level 1, Prior to Feature Excavation.
View is to Grid South.

PLATE 9, LEFT: Unit 5, Level 1, Prior to Feature Excavation. View is to Grid North.

EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
PLATES 7-9

the second area explored, an additional one-by-two meter unit was laid out alongside the original test unit, resulting in the exposure of a two-by-two meter square. In each case, the initial test units were laid out in the east half (of the east/west trench) or the north half (of the north/south trench) of one of the original two-by-two meter surface collection units. All material was excavated by shovel, trowel, or similar implement. The units were advanced in 10 cm. levels, unless finer natural stratigraphy presented itself. Five gallons (18.93 liters) of soil were separated from each provenience for soil sample curation and flotation screening. In the case of the excavated features, either all of the material was removed for testing and flotation or a five gallon (18.93 liter) sample was recovered. The remainder of the material from each provenience was passed through one-quarter inch mesh hardware cloth. Unit plans were drawn at the base of each level and, after excavation of features, two profiles from each unit were recorded. All units were photographed similarly using ASA 400 black and white print film and ASA 64 color slide film. Unit plans, photographs and profiles presented in this report illustrate pertinent points in the discussion of the excavation process. The remainder of the drawings and photographs are available for inspection at the CRS offices in Atlanta.

During the initial stripping operations, a backhoe was brought to the site to excavate a sump for water screening. A large pump was borrowed from the University of West Florida to transport water up to the site plateau, and a return trench was dug out with the backhoe. The use of a water screening operation aids significantly in the speed and efficiency of screening the cohesive site soils. Unfortunately, due to failure of the pump, only the Unit One, Level Two material was water screened.

A description of the progress of excavation in each unit is supplied below. Descriptions of the analysis of the recovered artifacts will be covered in the laboratory methods and analysis chapter.

Test Unit One

A one-by-two meter unit was opened in the east half of the 40N40W controlled surface collection unit, in order to explore the nature of one of the dark, midden deposits uncovered during machine stripping.

Level Zero consists of the plowzone material removed during the stripping operations. Approximately 8 cm. (3 inches) of a dark brown clay loam overlies Level One material. The soil is mixed and contains lithic debris, ceramics, and charcoal fragments. At the base of the stripped level, polygonal chunks of dark brown clay loam were pulled out of the soil matrix, and the stripping was terminated.

Level One began at the base of the machine stripped region. Initially, no distinctions were noted between the Level One material and that of the previous level, except that the Level One material appeared to be slightly more compact. The dark brown clay loam continues throughout the unit to a depth of about 3 cm. (1.125 inches) below the top of level one and then becomes localized in the center of the unit. Areas of fine, yellow/brown sandy clay were uncovered at this point in the northeast corner and the south side of the unit. At the same time, the central portion of the unit gradually darkens to a nearly black clay loam. Level One was terminated at the point where these soil differences could be articulated across the unit, at a depth of between 14 and 16 cm. (5.5-6.2 inches).

The initial 3 cm. of dark brown clay in Level One appears to be an extension of the plowzone, which at this point consists of mixed soils from the yellow/brown sandy clay and the black clay loam. The plowzone caps an area of apparently undisturbed midden deposit (the black clay loam).

Level Two was removed to a mottled yellow/brown clay subsoil, at a depth of approximately 24 cm. (9.5 inches) below the surface. The black clay loam continues throughout the level and contains ceramics, lithics, and burned clay pellets. Immediately below the midden layer seven features were discovered extending into subsoil (Fig. 7, Plate 11). Apparently a portion of Feature Six was removed with the Level Two material. Features One through Five, and Six A, are post holes, all of which contained a dark brown/organic clay loam. Initially, Features Four and Six A were impossible to differentiate but during excavation were separated from each other and from Feature Six. Numerous pieces of burned clay were recovered from Level Two. Since no burned clay was found in Level One, and the Level One material apparently seals a portion of an intact midden deposit, the burned clay may represent daub from the exterior walls of a structure and not, as in some other areas of the site, clay burned during clearing of the field in the early 1970's.

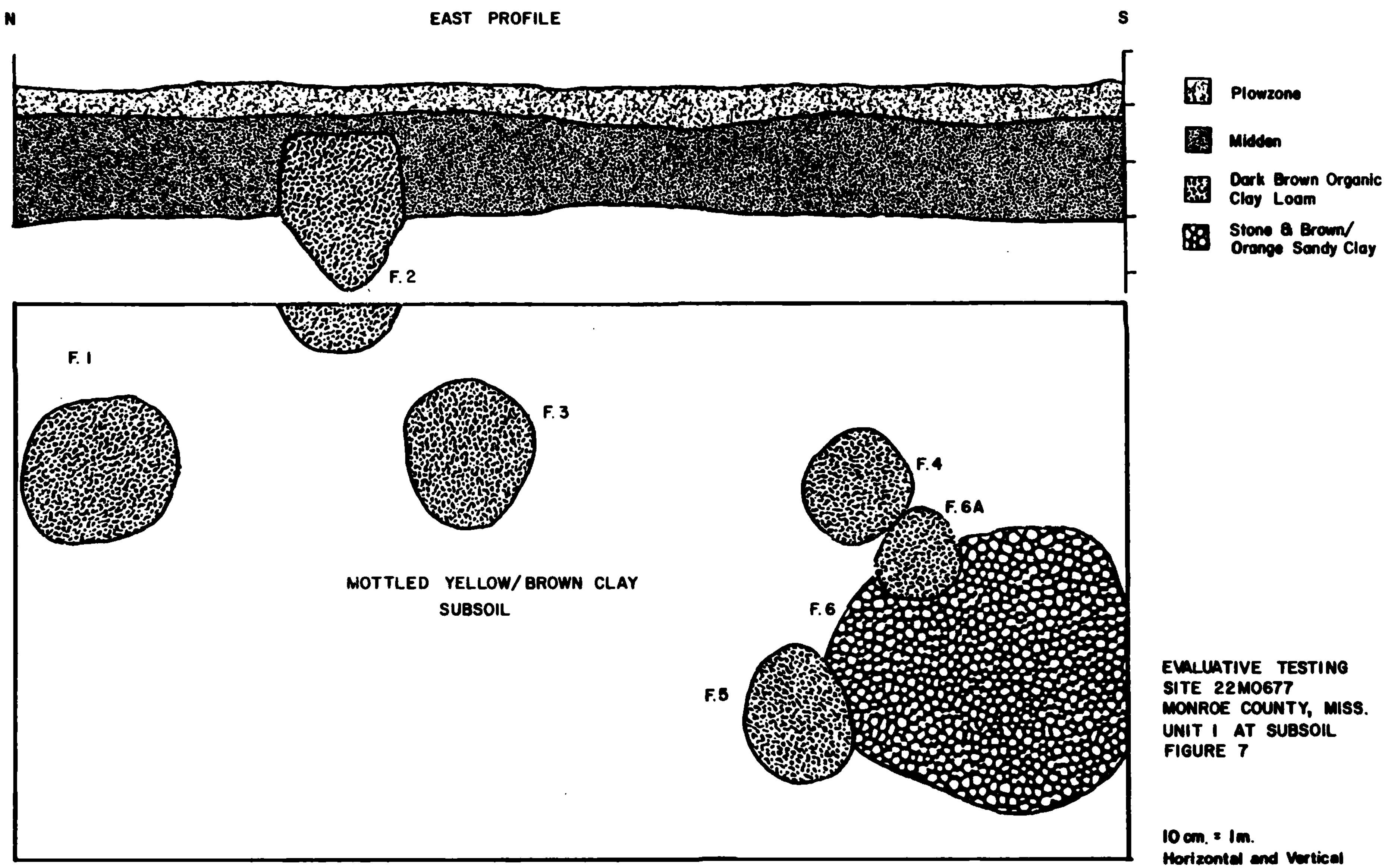
Feature Six is a roughly circular (55 cm. N-S by 50 cm. E-W), shallow (8.8 cm.) zone which abuts on the Feature Five and Four-Six A post holes. The fill from this feature was a brown/orange sandy clay which contained several hundred small non-heat treated pieces of Tuscaloosa gravel.

Test Unit Two

Test Unit Two was placed at the 40N30W surface collection unit, at another dark, midden-like area exposed during the machine stripping.

Level Zero again consisted of plowzone material, a medium brown clay loam. At this locus, however, the plowzone material is shallow (less than 7 cm. thick) and overlies midden deposits. The plowzone was removed entirely with the box blade, and sections of midden were uncovered.

Level One contains the midden material. The soil is a medium to dark brown clay loam and contains numerous ceramics, lithic debris, and burned clay. The midden thickness in Level One ranges from 5 to 8 cm. (1.9 to 3.1 inches). Three features, Seven, Seven A, and Eight, were articulated at the base of the midden, in brown clay subsoil (Fig. 8, Plate 12). Portions of



EVALUATIVE TESTING
SITE 22MO677
MONROE COUNTY, MISS.
UNIT I AT SUBSOIL
FIGURE 7

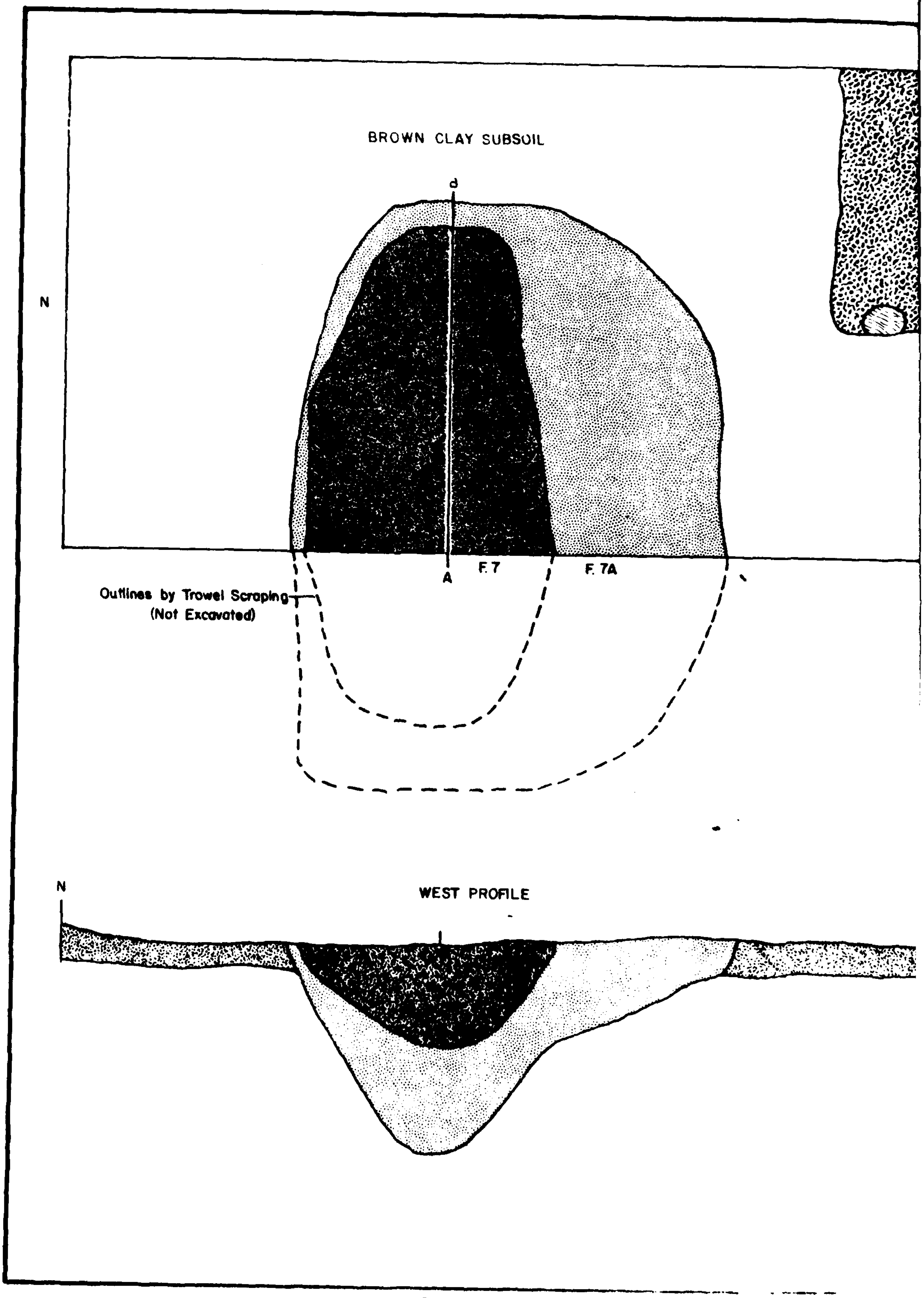
10 cm. = 1m.
Horizontal and Vertical Scale

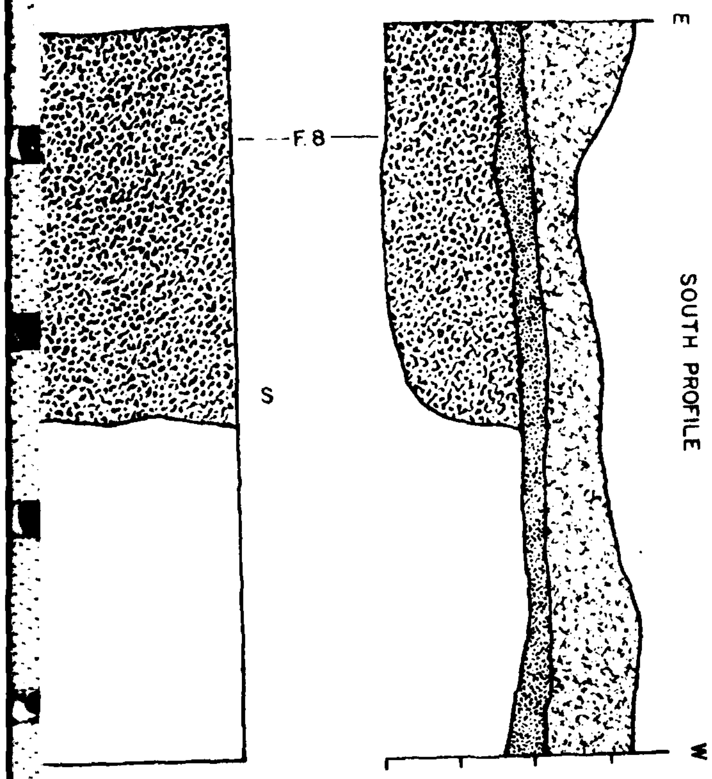
PLATE 10, UPPER LEFT: Excavation of Feature Seven in Progress, Looking Toward Grid North.

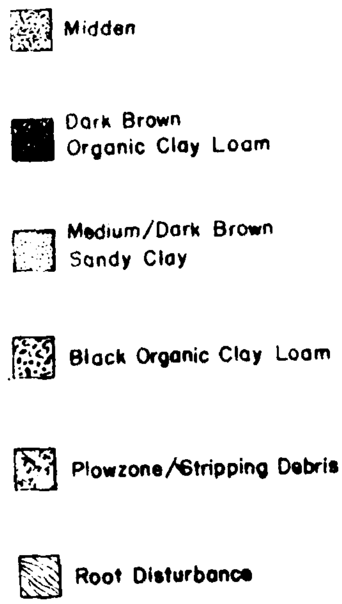
PLATE 11, ABOVE: Unit 1 is Pictured After Excavation of Features. The view is to Grid South.

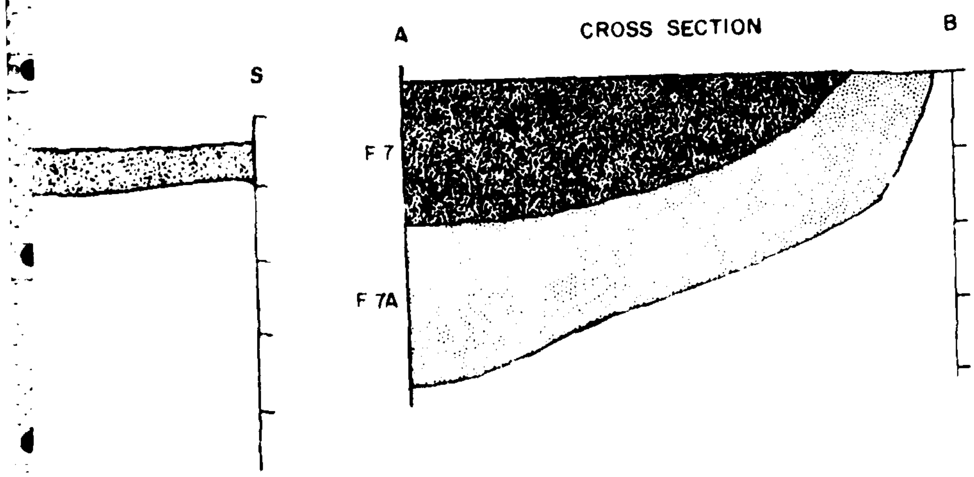
PLATE 12, LEFT: Unit 2 is Pictured After Excavation of Features. The view is to Grid West.

EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
PLATES 10-12


BROWN CLAY SUBSOIL
N
d
A
F. 7
F. 7A
Outlines by Trowel Scraping (Not Excavated)
N
WEST PROFILE







EVALUATIVE TESTING
SITE 22MO677
MONROE COUNTY, MISS.
UNIT 2 AT SUBSOIL
PROFILES & CROSS SECTIONS
FIGURE 8

10 cm = 1m
Horizontal and Vertical Scale

Feature Seven were present in the lower portions of the midden material, but due to their similar soil matrices were not differentiated until subsoil was reached.

Although features Seven and Seven A may represent a burial, it was impossible to identify any specific human skeletal elements because of poor preservation and this designation is at best tenuous. The overall shape of Freature Seven A is ovoid/rectangular, and in cross section shows the profile of a bi-level pit, oriented east/west. The soil matrix from this feature may be described as a medium brown sandy loam, which contained small amounts of ceramics and lithic artifacts, as well as unidentifiable burned and unburned bone fragments. Feature Seven is a smaller, ovoid pit intrusive into the Feature Seven A material. Several large (10 cm. diameter) Baytown plain var Roper sherds were found in this feature. Some of the sherds appear to have come from the same vessel, but no actual mends were possible. Both features continued into the west profile of the unit, and, while the western one-by-two meter half of the two meter square was scraped down to determine the level of origin of the features, it was not excavated. Several large sherds (Baytown Plain var. Roper) were found protruding out of the Feature Seven A fill in the western half. In addition to the large sherds from Feature Seven A, numerous quantities of charred nutshell fragments (type unspecified) were dispersed throughout the Feature, though a greater concentration was noted in the upper central portion. The presence of the potsherds and cache of nutshells suggests a grave offering, but this association, like that of the burial itself, is tenuous. Ceramic ratios (see Laboratory Methods and Analysis chapter) indicate a date for the feature in the Late Miller III to Terminal Miller phase (Jenkins 1981:33, 103), and one projectile point of the type one class (O'Hear, et al. 1979:183) supports the ceramic evidence. It should be noted that Jenkins (1981:36) notes that burial forms in the

Gainesville section of the Tombigbee Valley change from "tightly flexed interments with no consistent orientation to semi-extended inhumations on the back or side with heads oriented to the east" during this period.

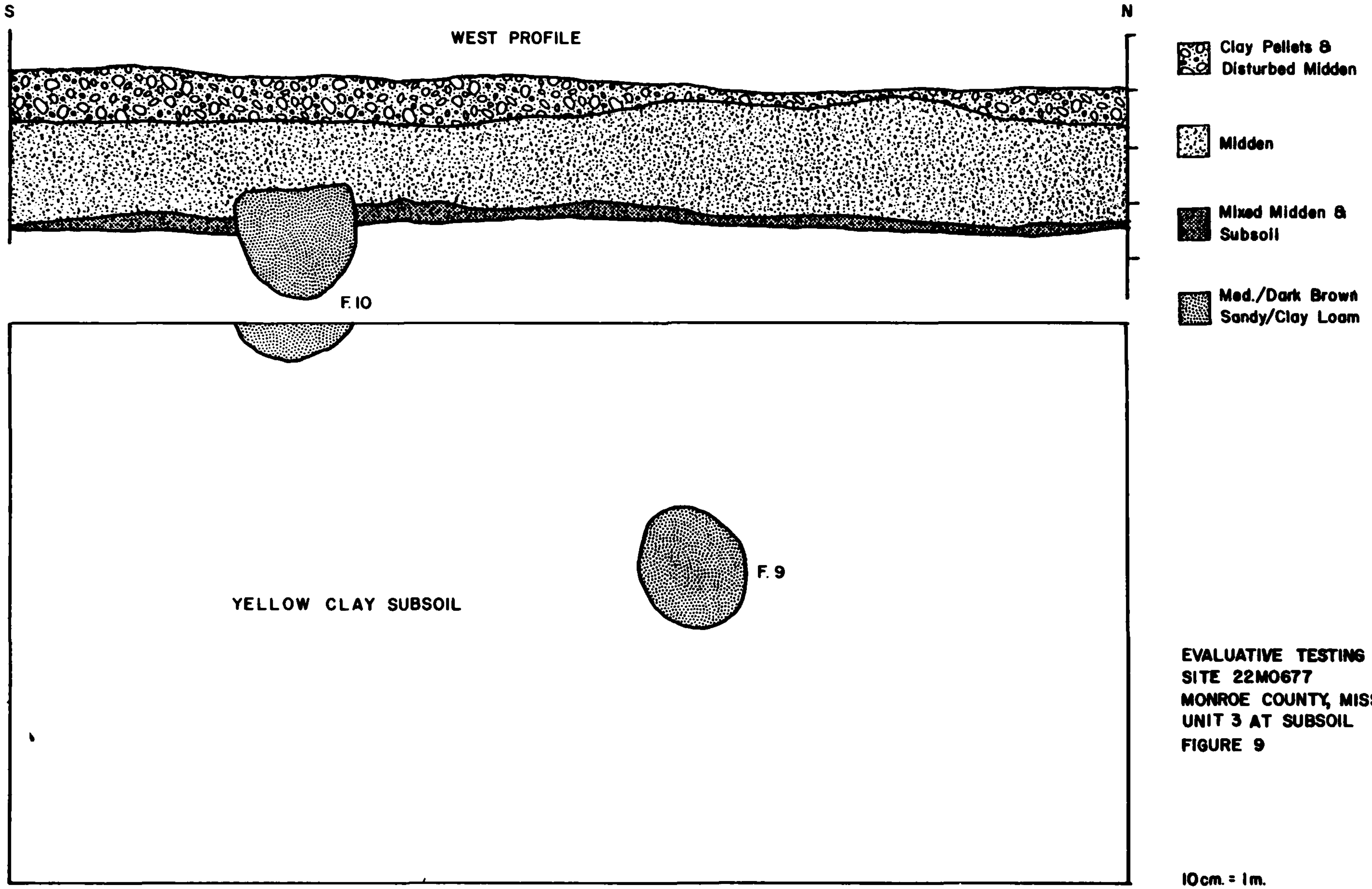
Feature Eight is apparently a shallow rectangular trash pit; only the northwest corner was uncovered since the rest of the feature ran into the south and east profiles of the unit. Fill from Feature Eight consisted of a black organic clay loam and contained numerous charred nut fragments (type unspecified) as well as burned bone fragments. Pottery recovered from the feature suggests a slightly earlier date than that of Features Seven and Seven A (see Laboratory Methodology and Analysis).

Test Unit Three

A one-by-two meter unit was opened in the east half of the 40N0E collection unit, in an area in which the machine stripping had revealed large quantities of burned clay (Fig. 5).

Approximately 8 cm. (3 inches) of plowzone material was removed during the machine trenching operation. Large concentrations of burned clay pellets were noted throughout the medium brown clay loam. The plowzone terminates in a layer of medium brown clay loam containing extremely high concentrations of burned clay pellets.

Level One is a layer of medium to dark brown clay loam containing very high concentrations of burned clay and appears to represent a zone of disturbed midden material mixed with burned clay from the field clearing operations. The level forms a stratigraphically distinct cap ranging from 2 to 10 cm. thick (0.8 to 4 inches) over midden deposits (Fig. 9, Plate 13). There are two irregular areas in the midden material which contain the same mottled brown/yellow clay as the ends of the test unit and are probably related to root activity. It is interesting to note that, while this unit appears to have been the most heavily utilized area tested in terms of ceramic density,



EVALUATIVE TESTING
SITE 22MO677
MONROE COUNTY, MISS.
UNIT 3 AT SUBSOIL
FIGURE 9

10cm. = 1m.
Horizontal and Vertical Scale

PLATE 13: Unit 3 is Pictured After Excavation of Features. The View is to Grid North.

PLATE 14: Unit 4 is Pictured, Showing Root Disturbance in the Southeast Corner. The View is to Grid East.

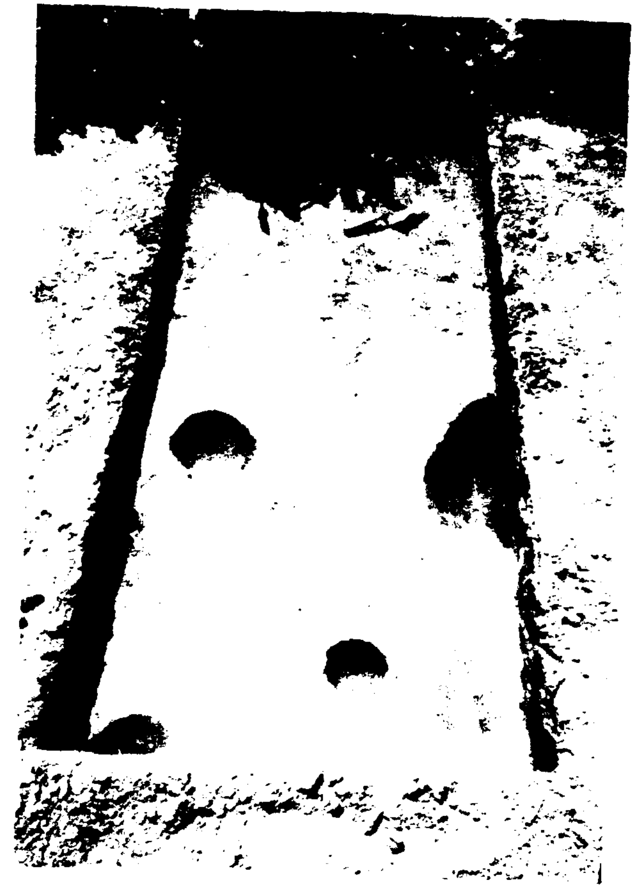


PLATE 15: Unit 5 is Pictured After Excavation of Features. The View is to Grid West.

EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
PLATES 13-15

the nature of the midden deposit is not as dark and does not contain as much organic material as do the midden matrices in Units One and Two.

After 10 cm. of the Level Two material had been removed, the unit was mapped and photographed, and Level Three was begun. During the course of the Level Two excavation, the soil matrix exhibited a gradual change to a mottled orange/yellow clay throughout the unit. No features were visible at this level, but artifacts continued to be unearthed until yellow clay subsoil was reached. The unit was leveled, and two post holes, Features Nine and Ten, were discovered. Feature Ten originated 3 to 4 cm. above a transition zone between the midden layer and subsoil and is visible in the west profile (Fig. 9). The fill from both post holes consisted of a medium to dark brown sandy clay loam. Numerous small flakes were recovered from Feature Nine, as well as five potsherds, while only one flake was recovered from Feature ten. These post holes are probably associated with a structure and the observed midden deposits, though it is not possible to determine whether they represent interior or exterior supports without further work in the area. It is also possible that the nature of the midden in this area may be explained by the presence of a prepared surface associated with the post holes, though again, more work in the area is required before any firm conclusions can be reached.

Test Unit Four

Test Unit Four was placed in the north half of the two-by-two meter surface collection unit made at 60N20W, in an area where the machine stripped trench and the surface collections showed another high concentration of burned clay pellets. Level Zero again consisted of the stripped portion of the unit. Upon removal of approximately 8 cm. (3 inches) of the plowzone material by the box blade, a layer of mixed burned clay and medium brown clay loam was revealed, similar to the Level One material in Test Unit Three. An area of disturbance was noted in the southeast corner of the unit, which continued throughout the subsequent excavation of two more levels. Root material from this area suggests that the disturbance is probably part of a tree fall (Fig. 10, Plate 14).

Level One was excavated to approximately 1 cm. below the point where the mixed daub and clay loam changed to a more homogenous brown sandy clay. Subsequent excavation of Level Two showed that the majority of the cultural material in the unit, and probably the majority of any midden deposits present, had been disturbed by field clearing operations.

Cultural material continued to be recovered from Level Two but was present only in the upper portions. No apparent distinctions were noted in the soil matrix throughout the level; the brown sandy clay loam continued until a mottled yellow/brown clay subsoil was reached.

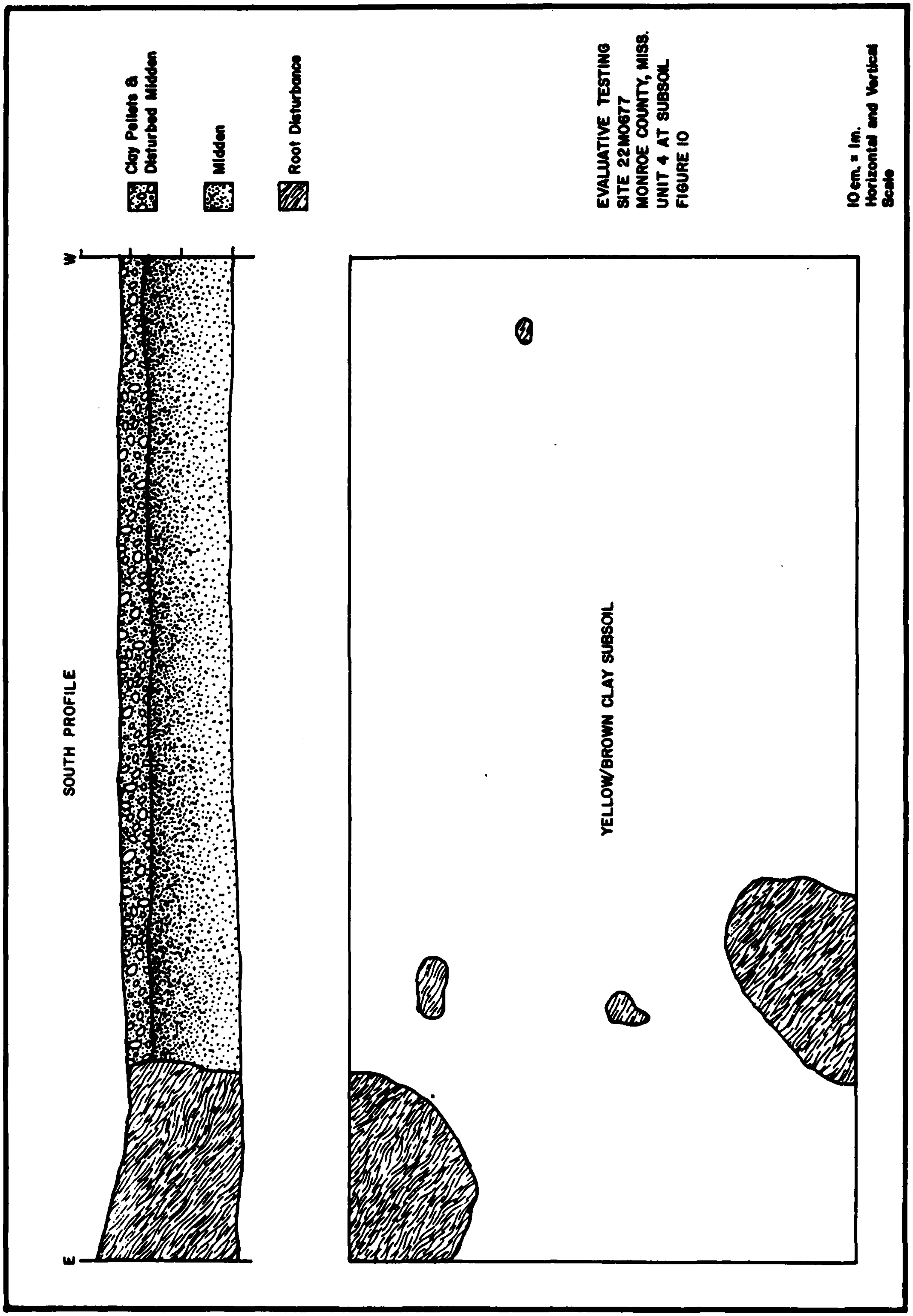
No features were observed at the bottom of Level Two. The tree disturbance in the southeast corner of the unit continues into subsoil, as do several root runs in the center of the unit (Fig. 10).

Test Unit Five

A one-by-two meter unit was placed in the northern half of controlled surface collection unit 20N20W, in an area which exhibited soil discolorations and artifact densities similar to those near Test Units One and Two.

Level Zero consisted of approximately 8 cm. (3 inches) of medium brown clay loam topsoil and was removed by machine stripping. It appears that some disturbance of the upper portion of an otherwise intact midden was incurred during cultivation of the field, but that the majority of the disturbed area was removed in the Level Zero material.

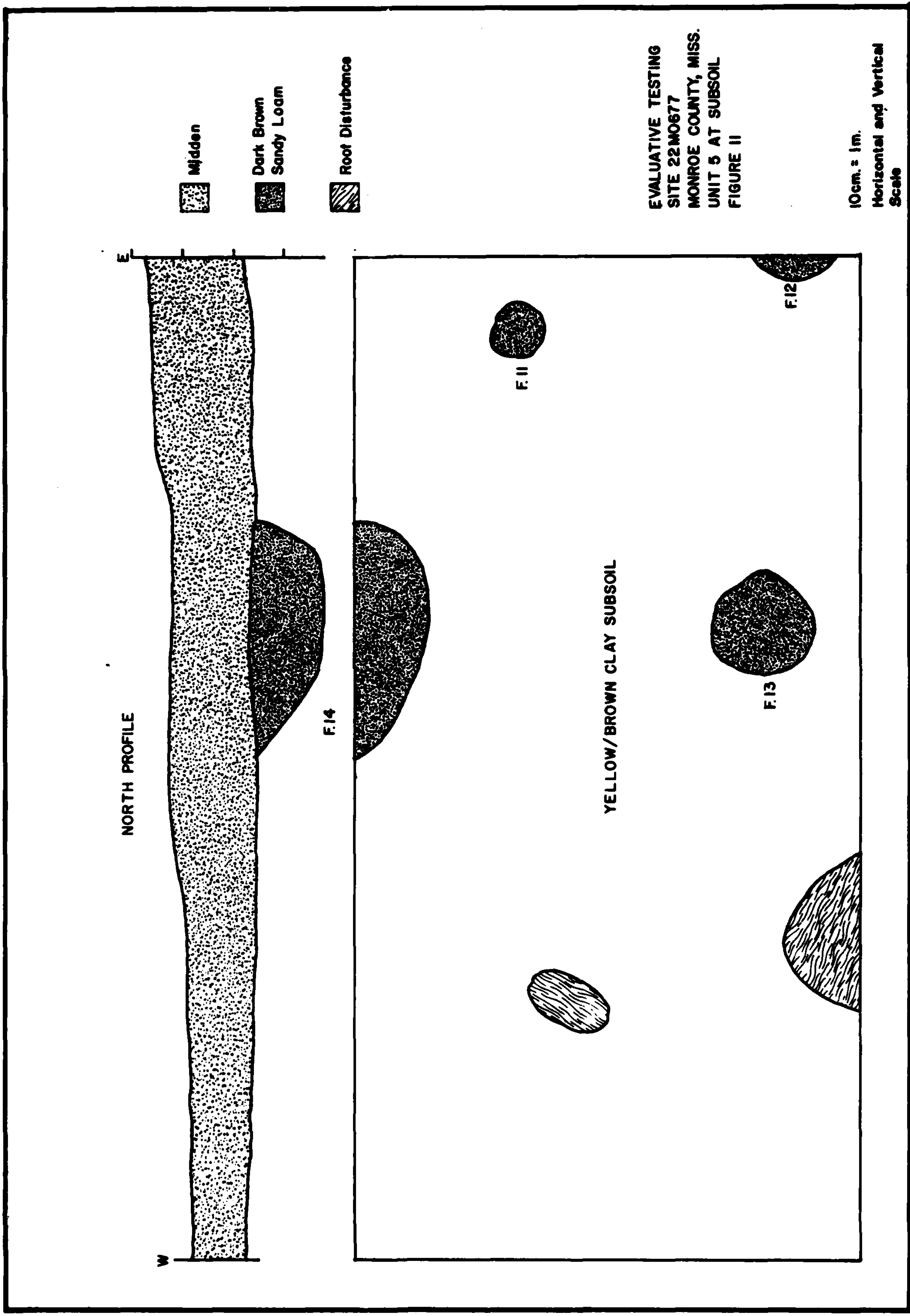
Level One was a dark brown/gray sandy clay loam which represents the midden material in this part of the site. After approximately 9 cm. (3.5 inches) of the midden had been removed from the western end of the unit, a


SOUTH PROFILE
W
E
Clay Pellets & Disturbed Midden
Midden
Root Disturbance
YELLOW/BROWN CLAY SUBSOIL
EVALUATIVE TESTING
SITE 22MO677
MONROE COUNTY, MISS.
UNIT 4 AT SUBSOIL
FIGURE 10
10cm. = 1m.
Horizontal and Vertical
Scale

yellow/brown clay subsoil was revealed. The remainder of the unit was then excavated to this level (Fig. 11, Plate 15), and four features were discovered (Features Eleven to Fourteen). Features Eleven, Twelve and Thirteen are post holes and were filled with a dark brown organic clay loam. The three post holes form an approximate right angle, and may represent an exterior corner of a rectangular or square structure. Jenkins (1981:36) has noted that the transition from round to rectangular structures occurs during the Late Miller III-Terminal Miller horizon. The possible existence of a rectangular structure at Site 22MO677 would seem to corroborate this assignment of the transition to this period in the Tombigbee Valley.

Feature Fourteen is an ovoid pit approximately 15 cm. (6 inches) deep, which extends into the north profile of Unit Five. The fill from this feature is a dark brown organic clay loam similar to that of the post holes already described. The quantity of artifacts from the feature is insufficient to determine its function.

Two areas of root disturbance were present in Unit Five. The larger of these was in the southwest quarter of the unit and extended into the profile, while the smaller one was located in the west-central portion of the unit.



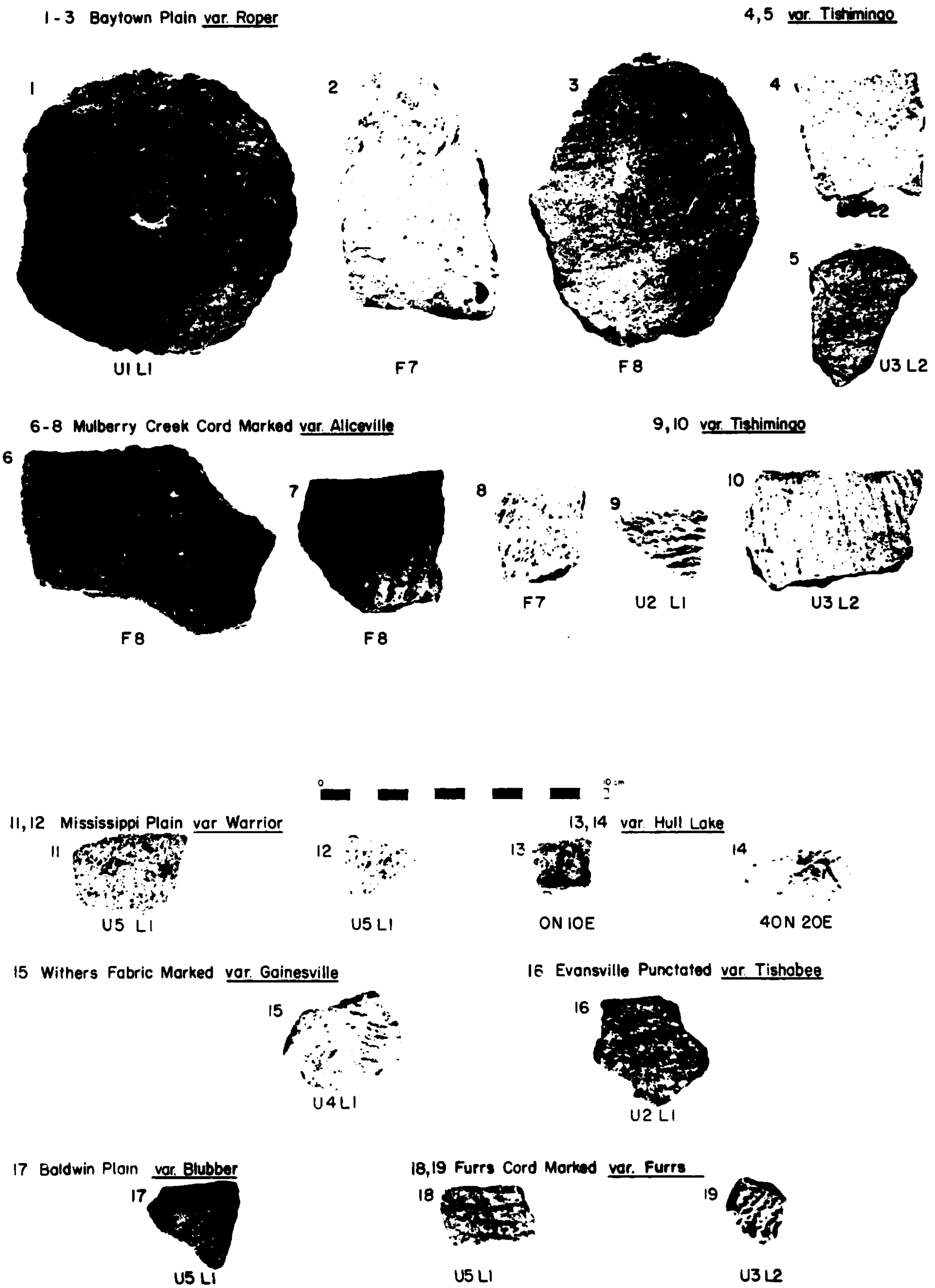
EVALUATIVE TESTING
SITE 22MO677
MONROE COUNTY, MISS.
UNIT 5 AT SUBSOIL
FIGURE 11

IV. LABORATORY METHODS AND ANALYSIS

During the laboratory and analysis phase of the project, ceramics were classified according to Jenkin's (1981) type-variety descriptions and lithic artifacts were classified by function and size, with references to O'Hear, et al. (1979). Various statistical operations were applied to the recovered artifact frequencies, and graphic representations of these statistics were prepared showing their relationships to site data such as topography and surface locale. All recovered soil samples were processed, through flotation and fine water screening equipment, and smaller samples were removed for soil tests and curation. Faunal and floral remains were separated during the flotation and water screening process. Each of these separate activities will be discussed in detail below.

Ceramic Analysis

As stated above, all ceramic artifacts were catalogued according to Jenkins' (1981) ceramic description and chronology. This analysis involved the use of a type/variety concept first used by Phillips (1970) in the Southeast. Such a concept first divides ceramics into types based on features such as surface and decoration and paste (broadly speaking), with as little dependence as possible on form or function. Varieties, into which the ceramics are then subdivided, may be based on such factors as form and design, and, to a large part in Jenkins' work, on intergradations of the major paste types. According to Phillips (1970:26), "The outstanding characteristic of varieties, on the other hand, as local or temporal expressions of the type, is that they intergrade. Sorting is bound to be to some extent arbitrary on that account alone." A brief summary of Jenkins' (1981) description of each type/variety recovered during the project will be presented below. Selected sherds of the major types recovered are shown in Plate 16. For a more complete description of the type/variety concept, see Jenkins (1981:5-8).



EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
SELECTED CERAMICS
PLATE 16

Sand Tempered Ceramics

Baldwin Plain

Baldwin Plain ceramics are sand tempered and undecorated. The type was originally defined by Jennings (1941) as a companion of the Satillo Fabric Marked and Furrs Cord Marked wares. Several varieties of the Baldwin Plain type have been cited by Jenkins (1981), which he sorted primarily on the basis of grain size. Of these varieties, however, only var. Blubber was located at Sites 22M0676 and 22M0677.

var. Blubber

This variety is sorted from other Baldwin Plain sherds by the presence of rounded sand grains 1.25 mm or less in diameter which comprise between 25 to 35 percent of the paste in the Miller I and II pieces, when the type initially appears. By Early Miller III the variety contains 25 percent or less sand, and begins to have a chalky texture (Jenkins 1981:148-149).

Furrs Cord Marked

The Furrs Cord Marked type is the cord marked counterpart to Baldwin Plain. The ware is sand tempered and first appears in the Tombigee Valley during the Middle Miller I subphase. During Late Miller I times the type increases in popularity but then declines during the Late Miller II subphase, where it represents only one to three percent of the ceramic complex (Jenkins 1981:159). A second growth in the occurrence of the Furrs Cord Marked wares appears during the Early Miller IIIa subphase and marks its final decline in the IIIb subphase. Jenkins (1981:159) has recorded two varieties of the type, var. Pickens and var. Furrs, and states that var. Pickens is the type found in the Gainesville Lake area, while var. Furrs, which is sorted on the basis of vessel morphology, occurs in the upper Tombighee drainage.

var. Furrs

This variety is identical in paste to the Baldwin Plain var. Blubber, with the addition of cord marked decoration. No morphologically distinguishable pieces were found, but those which were recovered have been placed in this variety rather than var. Pickens based on Jenkins' spatial discrimination.

Grog Tempered Ceramics

Baytown Plain

Baytown Plain ceramics are grog tempered and undecorated and have such a wide range both spatially and chronologically that Phillips (1970:48) has stated that the Baytown Plain is in fact a super-type. Jenkins (1981:104-107) has sorted the type into several varieties based on the ratio of sand to grog in the paste.

var. Roper

The var. Roper ceramics have been sorted by the occurrence of a predominately grog tempered paste with small amounts of sand. Grog pellets range from 1 to 3 mm in diameter and constitute 20 to 40 percent of the paste, while sand comprises 3 to 5 percent (Jenkins 1981:104). This variety occurs with great frequency during the Terminal Miller subphase, first appearing in the Late Miller II subphase and increasing in popularity throughout the subsequent subphases. The dominant vessel forms are the beaker and the hemispherical bowl. This variety has been previously classified as Tishimingo Plain by Blakeman (1975) and others.

var. Tishimingo

Ceramics belonging to var. Tishimingo may be sorted from the var. Roper wares by the appearance of more sand and less grog in the paste. Grog constitutes less than 20 percent of the paste, while the sand component has increased to between 10 and 20 percent. Vessel forms are reported as identical with those of the Roper variety. This variety appears to have been heavily represented during the Late Miller II subphase (Jenkins 1981:106).

It should be noted that some difficulty was encountered in sorting the var. Roper ceramic from the var. Tishimingo, but, as noted, Phillips (1970) has stated that this is to be expected.

Evansville Punctated

Phillips (1970) has defined the Evansville Punctated type as a catch-all category which includes all non-shell tempered Lower Mississippi Valley, post-Tchula period punctated pottery (Jenkins 1981:108). The type exhibits beaker and hemispherical forms covered with random square or round punctations on the vessel exterior. Only one variety, Tishabee, has been recognized by Jenkins, and the examples recovered from 22MO677 have been assigned to that group.

var. Tishabee

The var. Tishabee ceramics exhibit a paste identical to the Baytown Plain var. Roper wares. The only distinction between the two is the punctations randomly covering the surface of the former variety. Punctations consist of square or round impressions 1 to 2 mm across and 1 to 2 mm deep. The variety first occurs during the Early Miller III subphase and continues as a minority throughout the Terminal Miller subphase, when it constitutes less than 0.1 percent of the ceramic inventory in the Gainesville Lake area (Jenkins 1981:109).

Mulberry Creek Cord Marked

The Mulberry Creek Cord Marked ceramics have been located in northwestern Alabama by Haag (1939), and in the Lower Mississippi Valley by Phillips, Ford, and Griffin (1951). Jenkins (1981:117) has placed the Tishimingo Cord Marked ceramics (Jennings 1941, Blakeman 1975) into the Mulberry Creek Type as var. Tishimingo in an attempt to connect its distribution between the

Tennessee and Mississippi Valleys. The type consists of grog tempered, usually hemispherical and conical vessels cord marked over their entire surface. While differences in the cord marking treatment have been noted during the present project, Jenkins (1981:117) has found little meaningful temporal variability in the differing surface treatments. Instead, the Mulberry Creek Cord Marked type has been subdivided like the Baytown Plain type, on the basis of varying amounts of sand and grog tempering in the paste. The type first becomes important after the beginning of the Early Miller III subphase, increases in frequency throughout the Middle Miller III subphase, and in the Gainesville area accounts for between 40 and 50 percent of the ceramic inventory during the Late to Terminal Miller subphases (Jenkins 1981:118). Blakeman (1975:74), however, reports that in the Aberdeen Lock and Dam section of the Tombigbee, the ratio of Tishimingo Plain (Jenkins' Baytown Plain, var. Roper) is about 2 to 1 over the Cord Marked wares.

var. Aliceville

This variety has been previously classified as Tishimingo Cord Marked. The paste is identical to that of the Baytown Plain, var. Roper, but exhibits cord marking applied over the entire exterior of the vessel. The cord marking was done with a cord wrapped paddle 13 to 30 cm wide and was applied vertically or obliquely to the vessel while the clay was wet. The cord used may be as large as 3 mm. and was spaced from 1 to 6 mm. apart (Jenkins 1981:119).

var. Tishimingo

The var. Tishimingo ceramics are identical in surface treatment to the var. Aliceville wares. The paste of this variety, however, is identical to that of Baytown Plain var. Tishimingo.

Withers Fabric Marked

This type is sorted by the exterior surface treatment, which consists of the random application of cord or fabric wrapped dowels over the entire exterior of the vessel. There appears to be some temporal variation in the width of the individual impressions made, which resulted from changes in the number of dowels employed, but this relationship was not fully delineated at the time the variety designations were assigned. Accordingly, the major variety designations again rest on amount of sand or grog present in the paste and only secondarily on the various surface treatments employed (Jenkins 1981:124-125). The type appears during the Late Miller II subphase, present in varieties not found during the current work. The variety, Gainesville, which was found at 22MO677, appears during the Late Miller II subphase, as an intermittent occurrence, and then grows to represent from 6 to 10 percent of the ceramic inventory in the Gainesville Lake area during Late Miller III to Terminal Miller times (Jenkins 1981;125).

var. Gainesville

The paste of this variety consists of 20 to 40 percent grog pellets from 1 to 3 mm in diameter, with the addition of approximately 3 to 5 percent sand. In other words, the paste is identical to that of Baytown Plain, var. Roper, and Mulberry Creek Cord Marked, var. Aliceville. The fabric impressions were created most often with a paddlelike instrument made of four to six dowels woven together (Jenkins 1981:126).

Shell Tempered Ceramics

The shell tempered ceramic types first appear in the Tomibigbee River Valley between A.D. 900 and A.D. 1000. Similar dates have been postulated by Jenkins and Nielsen (1974) for three West Jefferson Phase sites in the Black Warrior River Valley, located about 56 kilometers to the east of the Tombigbee. Ceramic frequencies at these sites show less that 1 percent total shell tempered types, while 98 percent remain grog tempered plain and 1 percent grog tempered cord marked. The shell tempered ceramics apparently represent the initial contact between agriculturalized Mississippians and the Miller III inhabitants practicing a traditional Woodland lifeway. The shell tempered ceramics recovered from 22MO677 are members of two varieties of the Mississippi Plain ceramic type.

Mississippi Plain

Phillips (1970:58-59) first established the Mississippi Plain designation as a super-type (not unlike that of the Baytown Plain wares) which included all undecorated coarse shell tempered ceramics. The type has been radiocarbon dated at A.D. 1070 ±55 at the Bessemer Site (Walthall 1978). Mississippi Plain has been subdivided into two varieties based on tempering agents.

var. Warrior

This variety contains 1 to 2 mm diameter shell fragments as a tempering agent. The variety corresponds to the Warrior Plain type (DeJarnette and Wimberly 1941).

var. Hull Lake

The Hull Lake variety was first established in 1979 by Coblentz. The wares may be separated from var. Warrior by the presence of sparse pieces of grog tempering along with shell fragments. This variety may represent a transition betwen the Baytown Plain, var. Roper and the Mississippi Plain, var. Warrior, and overlaps with the Baytown Plain var. Curry Creek, which has been described as a grog tempered ceramic possessing small amounts of shell (Jenkins 1981:82-83).

In addition to the above described types, a type Unclassified was created after Phillips (1970) and Jenkins (1981). The type Unclassified has been created to cover those sherds which do not conform to any specific type, as well as to indicate sherds which were too small to allow further classification.

The following tables (Tables 1 through 3) present, respectively, ceramic frequencies for the five test units by unit level and feature, ceramic frequencies for all two-by-two meter surface collection units, and ratios of Baytown Plain, var. Roper to Mulberry Creek Cord Marked, var. Aliceville for all surface collection units from which five or more ceramics were recovered, and the ratios in unit levels.

In the initial survey report in which Sites 22MO676 and 22MO677 were discussed, Blakeman (1975:74) states that the ratios of plain to cord marked ceramics is about two to one. As may be seen from Table 3, a two to one figure represents a minimum ratio, with some test unit levels presenting ratios of over eight to one, and some surface collection units possessing over fifteen to one ratios. The ratio of Baytown Plain, var. Roper to Mulberry Creek Cord Marked, var. Aliceville changes rapidly during the Late Miller III with the advent of what may be called Mississippian cultures. Blakeman (1975:74) has noted this change but rejects the adoption of Rucker's (1974:29-34) introduction of a Miller IV subphase in the Aberdeen Lock and Dam region. He does, however, state ". . . it should be noted that the dates for the latest occupation of the Cofferdam Site (A.D. 750 ±85; Blakeman, Atkinson and Berry 1976) and the earliest dates for Mississippian occupations in the area (A.D. 1180 ±67; Blakeman 1975:96) do leave a gap of several centuries which may be filled by this Late Miller III phase. . ." (Blakeman 1975:54).

Jenkins (1981:33) notes that the Cofferdam phase has been characterized by two or three to one predominance of the cord marked sherds over the plain types and has been dated at three sites to between A.D. 900 and A.D. 1100. This places the Middle Miller II (Cofferdam) subphase in a contemporary setting with Late Miller III and later subphases dated A.D. 900 to A.D. 1100,

Provenience	U1 L1	U1 L2	U2 East	U2 West	U3 L1	U3 L2	U3 L3	U4 L1	U4 L2	U5	TOTAL			
Baytown Plain <u>var. Roper</u>	324	26	270	114	83	510	5	213	35	329	1909			
<u>var. Tishimingo</u>	14	--	26	6	--	18	--	11	3	6	84			
Mul. Crk. Cord Marked <u>var. Aliceville</u>	89	11	74	43	15	63	--	52	8	41	396			
<u>var. Tishimingo</u>	7	--	7	3	--	4	--	2	--	--	23			
Withers Fabric Marked <u>var. Gainesville</u>	1	2	15	--	1	1	--	1	--	--	21			
Evansville Punctated <u>var. Tishabee</u>	1	--	2	--	--	--	--	--	--	--	3			
Baldwin Plain <u>var. Blubber</u>	12	5	5	1	--	13	--	2	9	5	52			
Furrs Cord Marked <u>var. Furrs</u>	1	1	--	--	--	1	--	1	--	1	5			
Mississippi Plain <u>var. Warrior</u>	--	--	2	2	2	2	--	--	--	6	14			
<u>var. Hull Lake</u>	--	--	--	--	--	1	--	--	--	2	3			
Type <u>Unspecified</u>	126	6	38	51	--	105	2	32	--	67	427			
TOTAL	575	51	439	220	101	718	7	314	55	457	2937			

TABLE 1: Ceramic Frequencies For Test Unit Levels And Features.

Provenience	F1	F2	F3	F4	F6	F6A	F7	F7A	F8	F9	F12	F13	F14	TOTAL
Baytown Plain var. Roper	2	1	2	5	--	--	44	5	18	1	--	--	1	79
var. Tishimingo	--	--	--	--	--	--	--	--	--	--	--	--	--	
Mul. Crk. Cord Marked var. Aliceville	2	--	2	1	1	1	55	2	27	1	1	1	--	94
var. Tishimingo	--	--	--	--	--	--	--	--	--	--	--	--	--	
Withers Fabric Marked var. Gainesville	--	--	--	--	--	--	--	--	--	--	--	--	--	
Evansville Punctated var. Tishabee	--	--	--	--	--	--	--	--	--	--	--	--	--	
Baldwin Plain var. Blubber	--	--	--	--	--	--	--	--	--	--	--	--	--	
Furrs Cord Marked var. Furrs	--	--	--	--	--	--	--	--	--	--	--	--	--	
Mississippi Plain var. Warrior	--	--	--	--	--	--	--	--	--	--	--	--	--	
var. Hull Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	
Type Unspecified	11	2	--	--	2	4	24	7	35	3	--	--	1	89
TOTAL	15	3	4	6	3	5	123	14	80	5	1	1	2	262

2

TABLE 1: Continued
Only Those Levels and Features Which Contain Ceramics Are Listed.

Provenience	60N 50W	50N 50W	40N 50W		60N 40W	50N 40W	40N 40W	30N 40W		70N 30W	60N 30W	50N 30W	40N 30W	30N 30W
Baytown Plain var. Roper	8	13	13		2	23	21	21		7	20	22	39	28
var. Tishimingo	1	--	--		1	--	--	1		--	--	--	1	--
Mul. Crk. Cord Marked var. Aliceville	2	2	--		4	5	5	1		1	--	6	5	2
var. Tishimingo	1	--	--		--	1	--	--		--	--	--	--	--
Withers Fabric Marked var. Gainesville	--	--	--		--	1	--	--		--	--	--	--	--
Evansville Punctated var. Tishabee	--	--	--		--	--	--	--		--	--	--	--	--
Baldwin Plain var. Blubber	--	--	1		--	--	--	1		--	--	--	--	--
Furrs Cord Marked var. Furrs	--	--	--		--	--	--	--		--	--	--	--	--
Mississippi Plain var. Warrior	--	--	--		--	--	--	-		--	--	--	--	--
var. Hull Lake	--	--	--		--	--	--	--		--	--	--	--	--
Type Unspecified	--	1	--		3	4	3	1		1	2	2	--	3
TOTAL	12	16	14		10	34	29	25		9	22	38	45	33

TABLE 2: Ceramic Frequencies In Surface Collection Units. Only Those Proveniences Which Contain Ceramics Are Listed.

Provenience	20N 30W		70N 20W	60N 20W	50N 20W	40N 20W	30N 20W	20N 20W	10N 20W		80N 10W	70N 10W	60N 10W	50N 10W
Baytown Plain var. Roper	33		14	7	12	20	11	20	37		14	15	1	9
var. Tishimingo	--		1	--	--	--	2	2	--		1	--	--	--
Mul. Crk. Cord Marked var. Aliceville	2		1	--	5	1	3	--	2		3	2	--	6
var. Tishimingo	--		--	--	--	--	--	--	--		--	--	--	--
Withers Fabric Marked var. Gainesville	--		--	--	--	--	--	--	--		--	--	--	--
Evansville Punctated var. Tishabee	--		--	--	--	--	--	--	--		--	--	--	--
Baldwin Plain var. Blubber	--		--	--	--	--	1	--	--		--	--	1	--
Furrs Cord Marked var. Furrs	--		--	--	--	--	--	--	--		--	--	--	--
Mississippi Plain var. Warrior	--		--	--	--	--	--	--	--		--	--	--	--
var. Hull Lake	--		--	--	--	--	--	--	--		--	--	--	--
Type Unspecified	3		2	--	--	2	1	3	4		1	--	--	--
TOTAL	38		18	7	17	23	18	25	43		19	17	2	15

2

TABLE 2: Continued

Provenience	40N 10W	30N 10W	20N 10W	10N 10W		80N 0E	70N 0E	60N 0E	50N 0E	40N 0E	30N 0E	20N 0E	10N 0E	0N 0E
Baytown Plain <u>var. Roper</u>	15	12	16	14		12	4	13	18	9	--	3	10	12
<u>var. Tishimingo</u>	1	2	--	--		1	1	1	1	1	1	--	--	1
Mul. Crk. Cord Marked <u>var. Aliceville</u>	2	3	5	2		--	--	1	--	--	--	--	3	5
<u>var. Tishimingo</u>	--	--	--	--		--	--	--	1	--	--	--	--	--
Withers Fabric Marked <u>var. Gainesville</u>	--	--	--	--		--	--	--	--	--	--	--	--	--
Evansville Punctated <u>var. Tishabee</u>	--	--	--	--		--	--	--	--	--	--	--	--	--
Baldwin Plain <u>var. Blubber</u>	--	--	--	--		--	--	--	--	--	--	--	--	--
Furrs Cord Marked <u>var. Furrs__</u>	--	--	--	--		--	--	--	--	--	--	--	--	--
Mississippi Plain <u>var. Warrior</u>	--	--	--	--		--	--	--	--	--	--	--	--	--
<u>var. Hull Lake</u>	--	--	--	--		--	--	--	--	--	--	--	--	--
Type <u>Unspecified</u>	--	--	1	4		2	3	1	--	--	--	--	2	3
TOTAL	18	17	22	20		15	8	16	20	10	1	3	15	21

TABLE 2: Continued

Provenience	90N	80N	70N	60N	50N	40N	30N	20N	10N	0N		100N 20E	90N 20E	80N 20E
Baytown Plain <u>var. Roper</u>	2	3	3	10	7	9	11	6	13	15		1	2	4
<u>var. Tishimingo</u>	--	--	1	--	1	--	--	1	1	2		--	--	1
Mul. Crk. Cord Marked <u>var. Aliceville</u>	--	2	--	1	3	--	1	1	1	--		--	--	--
<u>var. Tishimingo</u>	--	--	--	--	--	--	--	--	--	--		--	--	--
Withers Fabric Marked <u>var. Gainesville</u>	--	--	--	--	--	--	--	--	--	--		--	--	--
Evansville Punctated <u>var. Tishabee</u>	--	--	--	--	--	--	--	--	--	--		--	--	--
Baldwin Plain <u>var. Blubber</u>	--	--	--	--	--	1	--	1	--	--		--	--	--
Furrs Cord Marked <u>var. Furrs</u>	--	--	--	--	--	--	--	--	--	--		--	--	--
Mississippi Plain <u>var. Warrior</u>	--	--	--	--	--	--	--	--	--	--		--	--	--
<u>var. Hull Lake</u>	--	--	--	--	--	--	--	--	--	--		--	--	--
Type <u>Unspecified</u>	--	--	--	2	1	--	--	1	--	--		--	--	--
TOTAL	2	5	4	13	12	10	12	10	15	17		1	2	5

TABLE 2: Continued

Provenience	70N 20E	60N 20E	50N 20E	40N 20E	30N 20E	20N 20E	10N 20E	0N 20E	10S 20E		100N 30E	70N 30E	60N 30E	50N 30E
Baytown Plain <u>var. Roper</u>	2	5	5	11	14	9	11	19	20		1	--	3	4
<u>var. Tishimingo</u>	--	--	--	--	--	--	--	--	--		--	--	--	--
Mul. Crk. Cord Marked <u>var. Aliceville</u>	--	--	1	1	--	--	--	--	1		--	--	--	1
<u>var. Tishimingo</u>	--	--	--	--	--	--	--	--	--		--	--	--	--
Withers Fabric Marked <u>var. Gainesville</u>	--	--	--	--	--	--	--	1	--		--	--	--	--
Evansville Punctated <u>var. Tishabee</u>	--	--	--	--	--	--	--	--	--		--	--	--	--
Baldwin Plain <u>var. Blubber</u>	--	--	--	--	--	1	--	--	--		--	--	--	--
Furrs Cord Marked <u>var. Furrs</u>	--	--	--	--	--	--	--	--	--		--	--	--	--
Mississippi Plain <u>var. Warrior</u>	--	--	--	--	--	--	--	--	--		--	--	--	--
<u>var. Hull Lake</u>	--	--	--	--	--	--	--	--	--		--	--	--	--
Type <u>Unspecified</u>	--	--	--	--	--	1	--	3	4		--	1	--	--
TOTAL	2	5	6	12	14	11	11	23	25		1	1	3	5

TABLE 2: Continued

6

Provenience	10N 40E	0N 40E	10S 40E		130N 50E	40N 50E	20N 50E	10N 50E	0N 50E	10S 50E		140N 60E	70N 60E	50N 60E
Baytown Plain var. Roper	2	3	7		1	--	2	--	2	--		--	1	--
var. Tishimingo	1	--	--		--	--	--	--	--	--		--	--	--
Mul. Crk. Cord Marked var. Aliceville	--	--	--		--	--	--	--	--	--		--	--	--
var. Tishimingo	--	--	--		--	--	--	--	--	--		--	--	--
Withers Fabric Marked var. Gainesville	--	--	--		--	--	--	--	--	--		--	--	--
Evansville Punctated var. Tishabee	--	--	--		--	--	--	--	--	--		--	--	--
Baldwin Plain var. Blubber	--	--	--		--	--	--	--	--	--		--	--	--
Furrs Cord Marked var. Furrs	--	--	--		--	--	--	--	--	--		--	--	--
Mississippi Plain var. Warrior	--	--	--		--	--	--	--	--	--		--	--	--
var. Hull Lake	--	--	--		--	--	--	--	--	--		--	--	--
Type Unspecified	--	--	1		1	1	--	1	1	1		1	--	1
TOTAL	3	3	8		2	1	2	1	3	1		1	1	1

TABLE 2: Continued

Provenience	40N 30E	30N 30E	20N 30E	10N 30E	0N 30E	10S 30E		100N 40E	90N 40E	60N 40E	50N 40E	40N 40E	30N 40E	20N 40E
Baytown Plain <u>var. Roper</u>	2	10	5	5	11	14		1	--	--	2	--	4	--
<u>var. Tishimingo</u>	--	--	--	1	--	--		--	--	--	--	--	--	--
Mul. Crk. Cord Marked <u>var. Aliceville</u>	--	1	--	--	3	1		1	--	--	--	1	--	--
<u>var. Tishimingo</u>	--	--	--	--	1	--		--	--	--	--	--	--	--
Withers Fabric Marked <u>var. Gainesville</u>	--	--	--	--	--	--		--	--	--	--	--	--	--
Evansville Punctated <u>var. Tishabee</u>	--	--	--	--	--	--		--	--	--	--	--	--	--
Baldwin Plain <u>var. Blubber</u>	--	--	--	--	--	--		--	--	--	--	--	--	--
Furrs Cord Marked <u>var. Furrs</u>	--	--	--	--	--	--		--	--	--	--	--	--	--
Mississippi Plain <u>var. Warrior</u>	--	--	--	--	--	--		--	--	--	--	--	--	--
<u>var. Hull Lake</u>	--	--	--	--	--	--		--	--	--	--	--	--	--
Type <u>Unspecified</u>	--	--	1	5	2	1		--	1	1	--	--	--	1
TOTAL	2	11	6	11	17	16		2	1	1	2	1	4	1

TABLE 2: Continued

7

8

Provenience	40N 60E	30N 60E	20N 60E	10N 60E	0N 60E	20S 60E		40N 70E	30N 70E	20N 70E	0N 70E	10S 70E		70N 80E
Baytown Plain *var. Roper*	2	3	6	4	1	1		3	5	2	2	--		1
var. Tishimingo	--	--	--	--	--	--		--	--	--	--	--		--
Mul. Crk. Cord Marked *var. Aliceville*	--	--	--	1	--	--		--	--	--	--	1		--
var. Tishimingo	--	--	--	--	--	--		--	--	--	--	--		--
Withers Fabric Marked *var. Gainesville*	--	--	--	--	--	--		--	--	--	--	--		--
Evansville Punctated *var. Tishabee*	--	--	--	--	--	--		--	--	--	--	--		--
Baldwin Plain *var. Blubber*	--	--	--	--	--	--		--	--	--	--	--		--
Furrs Cord Marked *var. Furrs*	--	--	--	--	--	--		--	--	--	--	--		--
Mississippi Plain *var. Warrior*	--	--	--	--	--	--		--	--	--	--	--		--
var. Hull Lake	--	--	--	--	--	--		--	--	--	--	--		--
Type *Unspecified*	--	--	--	--	--	--		--	1	--	--	1		--
TOTAL	2	3	6	5	1	1		3	6	2	2	2		1

TABLE 2: Continued

Provenience	40N 80E	20N 80E	10S 80E		120N 90E	40N 90E	30N 90E	10S 90E		140N 100E	130N 100E	40N 100E	20N 100E	0N 100E
Baytown Plain var. Roper	2	1	3		--	--	--	2		--	2	1	3	1
var. Tishimingo	--	--	--		--	--	--	--		--	1	--	--	--
Mul. Crk. Cord Marked var. Aliceville	--	--	--		--	--	--	--		--	--	--	--	1
var. Tishimingo	--	--	--		--	--	--	--		--	1	--	--	--
Withers Fabric Marked var. Gainesville	--	--	--		--	--	--	--		--	--	--	--	--
Evansville Punctated var. Tishabee	--	--	--		--	--	--	--		--	--	--	--	--
Baldwin Plain var. Blubber	1	--	--		1	1	1	--		--	--	--	--	--
Furrs Cord Marked var. Furrs	--	--	--		--	--	--	--		--	--	--	--	--
Mississippi Plain var. Warrior	--	--	--		--	--	--	--		--	--	--	--	--
var. Hull Lake	--	--	--		--	--	--	--		--	--	--	--	--
Type Unspecified	--	--	--		--	1	--	--		1	--	--	--	--
TOTAL	3	1	3		1	2	1	2		1	4	1	3	2

TABLE 2: Continued

9

Provenience	140N 110E		120N 120E	110N 120E	50N 120E	TOTAL								
Baytown Plain var. Roper	--		--	--	--	855								
var. Tishimingo	1		--	--	--	31								
Mul. Crk. Cord Marked var. Aliceville	--		--	1	--	103								
var. Tishimingo	--		--	--	--	5								
Withers Fabric Marked var. Gainesville	--		--	--	--	2								
Evansville Punctated var. Tishabee	--		--	--	--	0								
Baldwin Plain var. Blubber	--		3	--	--	14								
Furrs Cord Marked var. Furrs	--		--	--	--	0								
Mississippi Plain var. Warrior	--		--	--	--	0								
var. Hull Lake	--		--	--	--	0								
Type Unspecified	--		--	--	1	90								
TOTAL	1		3	1	1	1100								

TABLE 2: Continued

Table 3. Ratios of Baytown Plain *var. Roper* to Mulberry Creek Cord Marked *Var. Aliceville* in Test Unit Levels, Features, and Surface Collection Units.

Provenience	Ratio
Test Unit Levels and Features	
Unit One, Level One	3.6:1
Unit One, Level Two	2.4:1
Unit Two East	3.6:1
Unit Two West	2.7:1
Unit Three, Level One	5.5:1
Unit Three, Level Two	8.1:1
Unit Three, Level Three	N/A
Unit Four, Level One	4.1:1
Unit Four, Level Two	4.4:1
Unit Five, Level One	8.0:1
Features Containing at Least Five Specimens in the Two Ceramic Categories	
Feature Four	5.0:1
Feature Seven	4.0:5
Feature Seven A	2.5:1
Feature Eight	2.0:3
Surface Collection Units Containing at Least Five Specimens in the Two Ceramic Categories.	
60N50W	4.0:1
50N50W	6.5:1
60N40W	1.0:2
50N40W	4.6:1
40N40W	4.2:1
30N40W	21.0:1
70N30W	7.0:1
50N30W	3.7:1
40N30W	7.8:1
30N30W	14.0:4
20N30W	16.5:1
70N20W	14.0:1
50N20W	2.4:1
40N20W	20.0:1
30N20W	3.7:1
10N20W	18.5:1
80N10W	4.7:1
70N10W	7.5:1
50N10W	1.5:1
40N10W	7.5:1
30N10W	4.0:1

Table 3. Continued.

Provenience	Ratio
20N10W	3.2:1
20N10W	7.0:1
60N0E	13.0:1
10N0E	3.3:1
0N0E	2.4:1
80N10E	1.5:1
60N10E	3.6:1
50N10E	2.3:1
30N10E	11.0:1
20N10E	6.0:1
10N10E	13.0:1
50N20E	5.0:1
40N20E	11.0:1
10S20E	20.0:1
50N30E	4.0:1
30N30E	10.0:1
0N30E	3.7:1
10S30E	14.0:1
10N60E	4.0:1

a phenomenon that Jenkins (1981:35) explains as a result of parts of the Miller III population becoming acculturated into Mississippian lifeways, while another part (the Cofferdam subphase) retained more traditional Woodland values.

It is contact with Mississippians that presumably provided the impetus for the Woodland peoples' increased adoption of the plain ceramics over the cord marked varieties. Several other characteristics of this acculturation have already been noted, primarily the change in house patterns from round to square or rectangular (a pattern which Jenkins and Ensor (n.d.) and others have noted appearing as cultures adopted more complex forms of adaptation) and the change in burial form from a tightly flexed, non-oriented manifestation to burials exhibiting semi-flexed internments oriented east-west. Jenkins (1981:35) has noted that the introduction of small (less than 1 percent) amounts of shell tempered plain sherds into the ceramic inventory marks the transition between the Late Miller III phase and a phase which has been designated Terminal Miller. The Terminal Miller subphase in the Gainesville area exhibits almost equal proportions of plain to cord marked ceramics, as well as the changes in burial orientation and house morphology noted above. This phase has been dated to about A.D. 1000 in the Gainesville area (Jenkins 1981:36).

It appears from the evidence recounted above that the major occupation of 22MO677 should be placed in the Terminal Miller subphase. Evidence, though somewhat tenuous, has already been presented in the Archaeological Testing chapter for the existence of a structure exhibiting a square or rectangular morphology, and a possible burial pit oriented east-west. Shell Tempered Mississippi Plain ceramic varieties constitute percentages ranging from .3 to 1.9 in unit levels (Table 1). The predominance of plain ceramics over cord marked types, as opposed to the almost equal percentages in the Gainesville area, may be explained by more intensive contact with Mississippian peoples by the inhabitants in the Aberdeen Lock and Dam area. If radiocarbon dates from 22MO677 agree with those in the Gainesville area, the more intense contact may be due to the greater proximity of 22MO677 to the Mississippian core area (Phillips, Ford, and Griffin 1951, Sears 1964, Jennings 1974).

Blakeman (1975:74) has noted that the ceramic ratios in the area run between two to one and five to one plain types over cord marked in his unnamed "gap of several centuries." The placement of 22MO677 in a Terminal Miller subphase would help to fill this gap. In the event that the Cofferdam subphase is contemporary with the Late Miller III and Terminal Miller subphases, the site may be understood as having been occupied by peoples undergoing a more rapid rate of acculturation than those exhibiting more traditional Woodland lifestyles.

Ceramic ratios between the Baytown Plain, var. Roper and Mulberry Creek Cord Marked, var. Aliceville are presented in Table 3. The table includes both surface collection units and excavated unit levels. While the different ratios appearing on the surface may be explained as the result of disturbance (theoretically), the differences in the unit levels are not as easily accounted for. With these differences in ratio in mind, a series of Chi square tests (Young and Veldman 1972:375) was conducted on ceramic frequencies among various unit levels in order that any significant relationships might be revealed. Table 4 below presents the results of these tests. All tests were conducted in two-by-two contingency form (correction for continuity applies) table, resulting in a test with one degree of freedom, and a Chi square value of 3.84 needed to establish significance at the .05 level and a value of 6.64 required at the .01 level (Young and Veldman 1972:544).

Table 4. Chi Square Tests of Selected Unit Levels.

Unit Levels	Chi Square
Unit One, Surface Unit One, Level One	0.28
Unit One, Level One Unit One, Level Two	1.83
Unit Two, Surface, East Half Unit Two, Level One, East Half	3.14
Unit Three, Surface Unit Three, Level One	2.81
Unit Three, Level One[d] Unit Three, Level Two	1.12
Unit Three, Level Two Unit Three, Level Three	0.004*
Unit Four, Surface Unit Four, Level One[d]	2.89
Unit Four, Level One[d] Unit Four, Level Two	0.002
Unit Five, Surface Unit Five, Level One	3.52*
Unit One, Level One Unit Two, Level One	0.0008
Unit One, Level Two Unit Two, Level One	0.87
Unit One, Level One Unit Three, Level One[d]	1.54
Unit One, Level One Unit Three, Level Two	19.70
Unit One, Level One Unit Four, Level One[d]	0.26
Unit One, Level One Unit Four, Level Two	0.064
Unit One, Level Two Unit Three, Level Two	9.75
Unit One, Level Two Unit Four, Level Two	0.81

Table 4. Continued

Unit 1, Level 2 Unit 5, Level 1	8.89
Unit Two, Level One Unit Three, Level One[d]	1.46
Unit Two, Level One Unit Three, Level Two	17.89
Unit Two, Level One Unit Four, Level One[d]	0.22
Unit Two, Level One Unit Four, Level Two	0.41
Unit Two, Level One Unit Five, Level One	13.59
Unit Three, Level One[d] Unit Four, Level One	1.20
Unit Three, Level One[d] Unit Five, Level One	0.94
Unit Three, Level Two Unit Four, Level Two	3.08
Unit Three, Level Two Unit Five, Level One	0.004
Unit Four, Level One[d] Unit Five, Level One	8.43
Unit Four, Level Two Unit Five, Level One	1.43

*Calculation was performed with a value of .1 for Mulberry Creek Cord Marked, var. Aliceville, since no examples were found.

[d]The Unit Level has been disturbed by field clearing operations.

The results of the Chi square analysis indicate that there is no significant difference between the ceramics collected from the surface of each unit and the sherds recovered during excavation of Level One in each unit. This is important in its own right, since it confirms the validity of surface collection strategies in determining initial subsurface cultural/temporal relationships. The fact that twice as much area was surface collected as was excavated in each case will not affect the relationship, since halving the number of specimens gathered from the surface preserves the same ceramic ratio, which is what is compared in the Chi square tests.

When only undisturbed unit levels are examined, significant relationships among the test units become clear. This involves the examination of all of Units One, Two and Five, and Level Two of Units Three and Four. Level One in Units Three and Four has been disturbed by field clearing, as reported in the Archeological Testing chapter. A summary of these relationships is listed below.

1. No significant differences exist between any of the Unit One and Unit Two material.

2. No significant differences exist between the Unit Five material and the undisturbed Unit Three material.

3. Significant differences exist between these two groups (Units One and Two, and Units Five and Three). Chi square values of these relationships range from 8.199 to 19.70, significant in all examples at the .005 level.

4. No significant difference exists between either of the two groups of 3) above and Unit Four, Level Two (the undisturbed portion of the midden in that unit).

5. A significant difference exists between Unit Five, Level One and Unit Four, Level One, but the relationship must be suspect because of the disturbed nature of the Unit Four, Level One deposits.

Table 5 below presents the ratios of Baytown Plain, var. Roper to Mulberry Creek Cord Marked, var. Aliceville in the undisturbed unit levels.

Table 5. Ratios of Baytown Plain _var. Roper_ to Mulberry Creek Cord Marked _var. Aliceville_ in Test Unit Levels.

Unit Levels	Ratio
Unit One, Level One	3.6:1
Unit One, Level Two	2.4:1
Unit Two, Level One	3.6:1
Unit Three, Level Two	8.1:1
Unit Four, Level Two	4.4:1
Unit Five, Level One	8.0:1

Keeping in mind the results of the Chi square tests recounted above, and comparing them to the ceramic ratios in Table 5, it is clear that two separate ceramic clusters exist at 22MO677, with the difference between them being the increased ceramic ratio of the Unit Three, Level Two/Unit Five, Level One cluster. We recall that both Blakeman (1975) and Jenkins (1981) have noted increasing predominances of the plain ceramics over cord marked varieties through time, as the Mississippian transition progresses. Since at least one unit level in each of the two clusters contains shell tempered plain Mississippian ceramics, it appears that all of the units belong to the Terminal Miller subphase (Jenkins 1981). The two ceramically distinct clusters at 22MO677 both belong to the Terminal Miller subphase, but it appears that, as Terminal Miller progresses, the ceramic ratios continue to increase in favor of plain ceramics. The two clusters appear, therefore, to represent significantly distinct variations of the overall Terminal Miller subphase ceramic complexes. The Unit One/Unit Two cluster, with its average 3:1 ratio of plain to cord marked ceramics, may therefore be assigned an earlier date within the Terminal Miller than the Unit Three/Unit Five cluster. For the purpose of discussion within the body of this report these variations will temporarily be termed "Terminal Miller a" and "Terminal Miller b"; of course, additional work will need to be conducted before any firm designations may be made. The Unit Four material exhibits a ratio of 4.4:1, and is not significantly different from either of the two clusters. It is therefore postulated that the Unit Four material represents a transitional period between the provisional "Terminal Miller a" and "Terminal Miller b". A general movement from the western part of 22MO677 toward the south and east may be projected as having occurred during the Terminal Miller subphase. The site appears to have been more intensively occupied in the western part during the designated "Terminal Miller a," shifting gradually east and north during a period of transition, and then locating in the southeast portion of the plateau during "Terminal Miller b."

Lithics

A variety of lithic raw materials was utilized at 22MO677, but the predominant type belongs to the Tuscaloosa Gravel formation. Other lithic materia' present at the site, but in small (less than 5 percent) quantities include: Fort Payne Chert, Bangor Chert, and Quartzite. Hematite was been utilized at the site for grinding tools, which will be discussed later.

The Tuscaloosa Gravels originated as remnant sediments from the Cretaceous period of the Mesozoic era. Shifting of the Tombigbee River has caused numerous gravel bars to be exposed in the present channel. Ensor (1978:5) has described the raw Tuscaloosa gravel as possessing,

> Naturally occurring cortical color varieties from a light yellowish-brown to a dark yellowish-brown. Cortex thickness averages 1 mm. Cobble size ranges from 1-10 cm. in diameter with an average of 5 cm. Internally, the colors range from a pale yellow to a yellowish-brown. Textural differences are common from cobble to cobble sand within individual cobbles. Numerous quartz-filled fissures impregnate otherwise homogenous matrices. These cobbles are usually fine grained. Some cobbles were coarse grained and noticeably lacking in internal fissures and weathering planes.

Woodland period lithic material in the Tombigbee Valley shows large quantities of heat treated cherts, particularly the Tuscaloosa Gravels. The deep red color of the heat treated material may be readily separated from non-heated raw material in most cases, though Rucker (1974) has found pieces of non-heat treated, red Tuscaloosa Gravels. The presence of thermal spalls and "pot lid fractures" in abundance at a site abounding in deep red cherts may be taken as evidence for extensive heat treatment.

Ensor (1978) has conducted experiments on Tuscaloosa Gravel cobbles taken from the Gainesville Lake area of the Tombigbee drainage. Several samples of the cherts were heated at various temperatures; in some cases the heat was brought up gradually, while in others the specimens were very quickly brought to the desired temperature. In tests where the temperature was gradually raised,

> Most samples turned only a mottled yellowish-red on the inside and yellowish-red on the outside when heated to 250° C. However, the 300°C run produced marked changes from yellowish-reds to deeper yellowish-reds in most specimens. Subsequent runs of 350° C and 400° C produced a deepening to a red color. Minimal thermal explosion occurred throughout these tests. Some thermal cracking was noted at the 400° C level, but was rare (Ensor 1978:5).

Ensor has reported that these results duplicated the lithic material found on Miller II phase sites, but that a rapid heating to 550° C was necessary to produce the many specimens of fire cracked rocks and thermal spalls present on the later Miller III period sites. A deep red color and a high luster were produced on specimens treated in this manner. Knapping and pressure flaking quality is enhanced by the thermal alteration, but at the expense of tensile strength.

The results of these experiments by Ensor have shown that during Miller II times heat treatment was occurring in a manner which would allow the treating of relatively large pieces with little or no thermal explosion. The Miller III peoples, on the other hand, were heating the local cherts to the point of thermal explosion in many cases, which resulted in much smaller pieces available for subsequent lithic tool production. Ensor supports these observations by noting the reduced size of Miller III projectile points compared to those of the Miller II subphase, an overall lack of cores in Miller III artifact assemblages, color changes from a yellow-red pale red in Miller II to a deep red in Miller III, and an overall shift in flake sizes toward the smaller examples in the Miller III subphase.

Analysis of the lithic material collected from Sites 22MO676 and 22MO677 has centered on determining spatial and/or temporal loci of distinctive lithic production/use activities on an intra-site basis. Mueller and Cable (1980) and House and Ballenger (1976) have conducted research related to inter-site analysis on chert material in the Carolina Piedmont, and Jefferies (1977) has conducted initial investigations on intra-site analysis in the ridge and valley province. The present investigators have researched intra-site activity patterns on a large quarry site in the Georgia Piedmont (Webb and Savage 1981). All of these studies have been helpful in preparing a research strategy which would enable lithic activity variability to be isolated into stages of manufacture/use across space and/or time.

> Mueller and Cable (1980:50) state that. . . there is a general relationship between the size of debitage and the stages of lithic reduction. That is, that larger pieces of debitage tend to correlate positively with early stage reduction of cores, and that relatively smaller pieces tend to correlate positively with later stage reduction.

Other researchers (House and Ballenger 1976, Jefferies 1977) have utilized percentage of cortical material to segregate debitage into classes derived from various stages of lithic reduction. It is also possible, by examining flakes for telltale attributes such as bulbs of percussion, radiating lines of force, and edge fractures, to divide debitage into categories based on the manner and technique of the blow required to produce it, and therefore to isolate stages in the lithic reduction sequence (Crabtree 1972:1). However, the removal of cortical material tends to correlate almost exclusively with initial stages of lithic reduction, and detailed analysis of flaking techniques is not reliable without the use of high powered optics. Therefore, for the purposes of this study, overall flake size will be used to arrive at a general idea of lithic production and use sequences. Such a study has been conducted by the investigators on a quarry site in the Georgia Piedmont (Webb and Savage 1981), in which different stages of lithic reduction were found to have occurred at different parts of the site. An investigation of this nature is all the more pertinent to the Central Tombigbee River Valley since Ensor (1978:15-16) has already noted the shift in flake sizes toward smaller specimens through the Miller II to Late Miller III subphases.

In accordance with the research orientation outlined above, a set of flake size classes was established into which the debitage could be quickly segregated. Twelve size categories were created, with the smallest being .296 square centimeters (rounded to .3), and each succeeding class being 1.5 times the area of the last. Initially, in the study which the investigators conducted in the Georgia Piedmont, the smallest flake size category was one square centimeter, and eight additional classes were created having the same areal relationship as in the current study. For the purposes of this study, however, additional flake classes were needed on the small end of the scale to document further any final retouching or resharpening of tools which might be occurring at the sites. Three smaller classes were created, while the other class sizes remained the same. Again, .296 square cm. was the smallest class now created. The areas for all 12 flake classes were converted to radial measurements, and a set of 12 circles was drawn on a sheet of paper. The circles were numbered 1 through 12, with one being the smallest, two being 1.5 times the size of one, three 1.5 times two, and so on. It is the area of the circle that fits this pattern, not the radii. The following table lists the flake category numbers and their corresponding areas and radial measurement.

Table 6. Flake Size Areas and Radial Measurements.

Category #	Area (sq. cm.)	Radius (cm.)
1	0.296	0.31
2	0.444	0.37
3	0.667	0.46
4	1.0	0.56
5	1.5	0.69
6	2.25	0.85
7	3.75	1.09
8	5.62	1.34
9	8.43	1.64
10	12.64	2.01
11	18.98	2.46
12	28.44	3.01

It should be noted that other categories could have been created based on a different starting flake size or on different size ratios, which may have given slightly different results. However, these 12 categories were sufficiently spread over the continuum of flake sizes likely to occur so as to enable judgments to be made quantifiably concerning lithic reduction/use at the sites. The classes created, however, remain arbitrary ones and are open to continued refinement.

As has already been stated, there is a broad relationship between the stage of lithic manufacture and size of debitage produced. It is possible, though, for small flakes to be produced during early stages of reduction, as well as for large (relatively) flakes to be produced during final lithic production. However. . .

> What is being communicated is that over the long run, loci dominated by early stage core reduction will contain

> significantly larger debitage than loci where late stage reduction is the dominant behavioral mode (Mueller and Cable 1980:50).

Analysis of the recovered material began by separating all worked from non-worked material. All flakes were pulled out of the total collection and sized according to the classes and method outlined above. Retouched and utilized flakes were sized and then separated from the remaining debitage, since the investigators wished to determine if any consistent sizes were preferred for these purposes. Decortication flakes were pulled from the other flakes and not sized, since they are by-products of initial reduction sequences and may not, because of the thermal alteration sequences described above, have occurred during production of all lithic materials. All non-flake material was then catalogued by the following artifact types.

Abrader: Chunks of rock (usually sandstone) which show grooving or ground abraded surfaces. Examples can be grooved, have concave ground surfaces or flat ground surfaces. (After Faulkner and McCollough 1973:158).

Angular Shatter: Lithic material, which, like flakes of differing sizes, is a by-product of the reduction sequence or the thermal alteration sequence. Angular shatter is highly irregular in form and otherwise unclassifiable. It appears, though, that like flakes, large chunks of angular shatter tend to be produced during early reduction and smaller pieces during later reduction.

Biface: A piece of stone which exhibits negative flake scars on two roughly parallel and opposite sides. Thicker examples may be stages in the lithic production sequence otherwise known as "blanks," while thinner specimens may be portions of artifacts which would be classified as "projectile point/knives" if more of the artifact were present. For the purposes of this study, the biface category follows that of Mueller and Cable (1980:32) and is therefore intentionally broad. All bifacially worked fragments are included here, though some may have been portions of projectile point/knives (see below).

Core: A mass of stone that has been used for the removal of flakes for tool making or which is itself further reduced. The analysis follows that of Faulkner and McCollough (1973:80) in classing as cores any mass of lithic material which has one or more flakes removed.

Decortication Flake: A flake removed from the exterior of a parent rock, which exhibits a portion of the cortex of that rock. Ensor (1978:4) has noted that the Tuscaloosa Gravels tend to have cortex material averaging 1 mm thick. The decortication flakes are almost always the by-product of initial lithic reduction sequences.

Drill: A long, rod-like bifacial blade which is usually quadrilateral in cross section. The blade section tapers to a blunt point and is formed by bifacial removal of small flakes. The analysis followed the definition given in Faulkner and McCollough (1973:86).

Fire Cracked Rock: Any broken stone which shows heat treatment but no subsequent flake removal which would cause it to be classed as a core. The Tuscaloosa Gravels were regularly heat treated during the prehistoric period in order to improve their flaking properties, and concentrations of such material are usually taken as de facto evidence for lithic production or cooking activity in the Tombigbee Valley.

Ground Stone: Amorphous fragments of hematite or sandstone which exhibit shallow, polished depressions. Many of these pieces may have been part of larger metate-like implements, in which food products were processed.

Hematite: Amorphous fragments of the mineral. Naturally occurs as Fe_2O_3, a hexagonal rhombohedral, and is a principal ore of iron. (American Geological Institute 1976:204).

Grinding Stone: A stone which exhibits grinding and polishing as a result of its use as the active member of a grinding operation, such as food preparation. A counterpart to the groundstone, or metate. These artifacts are often referred to as manos.

Projectile Point/Knife: Projectile points were classified according to the system devised by O'Hear and Phillips (O'Hear, et al. 1979). The category includes fragments of projectile points which were not sortable into their classification. Only those types actually found at Sites 22MO676 or 22MO677 are included in the following summary of their types (Plate 17).

Type 1. Small triangular projectile points.

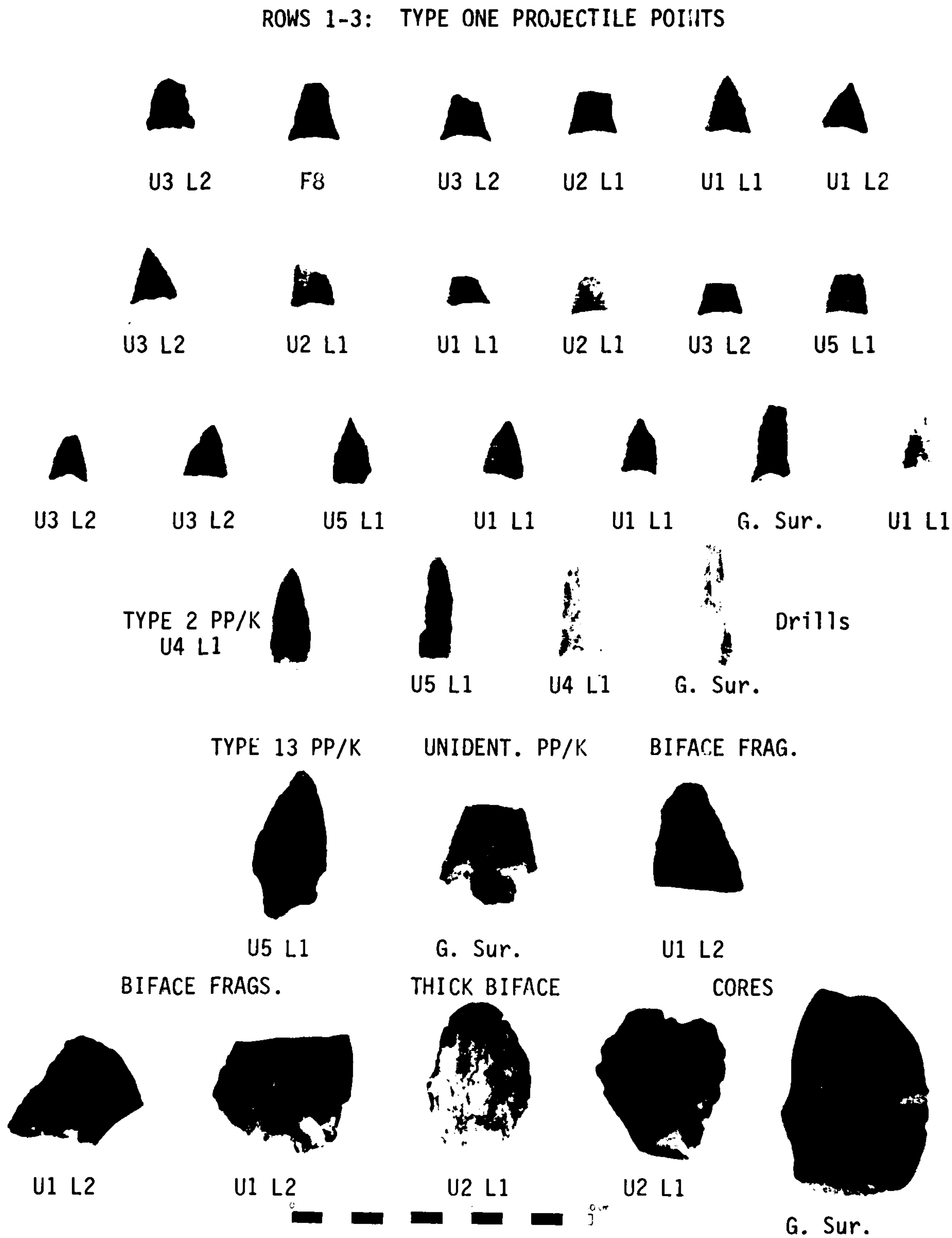
A small point exhibiting usually straight, but occasionally slightly incurvate or excurvate sides, with a flat or slightly incurvate base. This was the most numerous point type recovered from the sites, and is associated with the Miller III-Terminal Miller-Mississippian cultures (O'Hear, et al. 1979:183).

Type 2. Medium triangular-lanceolate, straight blade.

This type was first identified by O'Hear and Phillips (O'Hear, et al. 1979:185) in the Tombigbee drainage. The points are long and triangular in shape and have parallel edges along the proximal half of the blade. The bases are flat to slightly excurvate. Only one specimen of this type was recovered from a dateable feature by O'Hear. This feature suggests a Miller III context. One specimen recovered from 22MO677 came from the surface collections, and the other came from test Unit Four, Level One. The integrity of Unit Four, Level One has been disrupted by field clearing operations, so the association of the projectile point in this context is questionable.

Type 13. Medium large, contracting stem.

Type 13 points have contracting stems with rounded or flattened bases and usually pronounced shoulders. The blades are straight to slightly excurvate and may exhibit indistinct serrations (O'Hear, et al. 1979:191). Two specimens were located in adjacent surface collection units, 30N90E and 40N90E, and one was recovered from Unit Five Level One, where it is probably



EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
SELECTED CHIPPED STONE ARTIFACTS
PLATE 17

an intrusive member. Jenkins (1975:142) has found this type in context with Miller I period ceramics.

Two class 13 projectile points were located in adjacent surface collection units at 30N90E and 40N90E. These type points have been found in context with Miller I ceramics (Jenkins 1975), and their occurrence on the surface with two Baldwin Plain, var. Blubber potsherds suggests that the small artifact scatter in this part of Site 22MO677 may be dated to the Miller I period. No sursurface cultural material was located in this area during the auger testing phase, so it appears that this component is limited to the surface.

No reliable diagnostic lithics were recovered from 22MO676. A fragment of a possible Late Archaic type point not identified by O'Hear (O'Hear et al. 1979) was located during a general surface collection which was taken after the rest of the fieldwork was finished. No additional artifacts from this period were located, so the occurrence of this point probably represents an isolated component. While no other diagnostic lithics were located, the presence of almost equal amounts of sand and grog tempered ceramics suggests that the site was utilized during the Early Miller IIIa subphase (Jenkins 1980). Ceramic and lithic evidence suggests that 22MO676 was a small, task specific site. No subsurface material was located during the project. It is probable that the site has been adversely impacted by field clearing.

Type 14. Medium stemmed, horizontal shoulders, serrated blade. "The points of this group have a straignt to slightly rounded base on a straight to slightly expanding stem and horizontal shoulders. A major attribute is the fine serration on the blade" (O'Hear, et al. 1979:192). The points probably have a Late Archaic to Early Woodland association. Only one example was found at either site, that one being in Unit One, Level One, and it is probably intrusive.

Pitted Stone: A stone which exhibits one or more ground or pecked depressions. Larger examples of this type have frequently been called "nutting stones." Only one example of this type was located during the testing project. It is probably of natural origin.

Scraper: An implement beveled on one or more edges of a flake or blade. The retouching of an artifact in this manner creates a durable cutting edge which was presumably used during food/animal processing. Many subtypes may be separated on the basis of various attributes of manufacture or use, but in this study only the super-type is used. The definition follows that of Crabtree (1972:90).

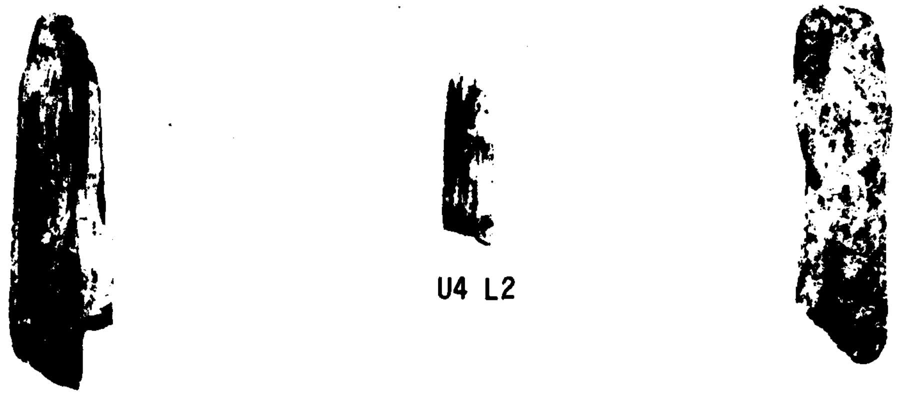
Treated Pebble: A pebble or cobble (usually Tuscaloosa Gravel) which shows evidence of heat treating, based on Ensor's (1978) study, but which has not fractured or cracked. A whole pebble which is usually slightly reddish-yellow.

Untreated Pebble: Non-heat treated, non-worked pebbles or cobbles. Most unworked pebbles from 22M0676 and 22M0677 were Tuscaloosa Gravel and exhibited a yellow to yellowish-brown color. Some small examples of well rounded quartzite were recovered. In the case of Feature Six, the pebbles appear to have been collected and may have been used as part of food preparation activity.

Selected non-flaked artifacts are shown in Plate 18. The following tables (Tables 7 and 8) present total frequencies of flakes of each size class and total artifact frequencies for the controlled surface collection units (Table 7) and the excavation units and features (Table 8). Note that for retouched and utilized flakes the flake size class is included in parentheses after the frequency value.

It is clear from the lithic artifact distribution tables that most of the lithic reduction debris occurs in Classes Six and lower. Few flakes from

ABRADERS



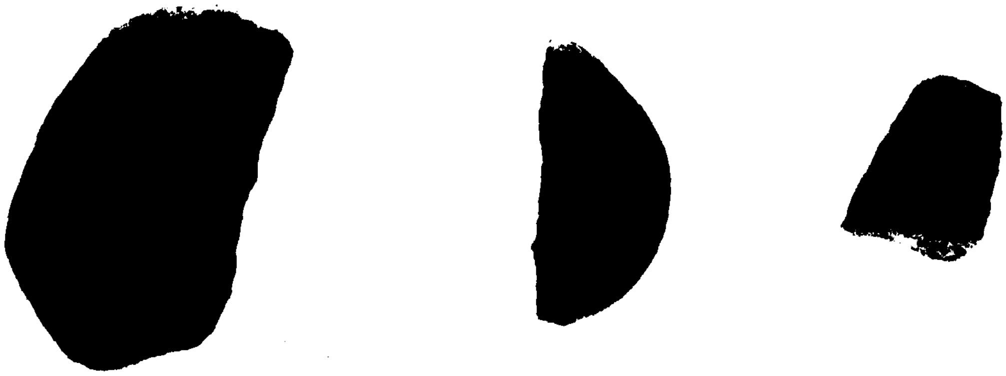
U4 L2

U3 L2

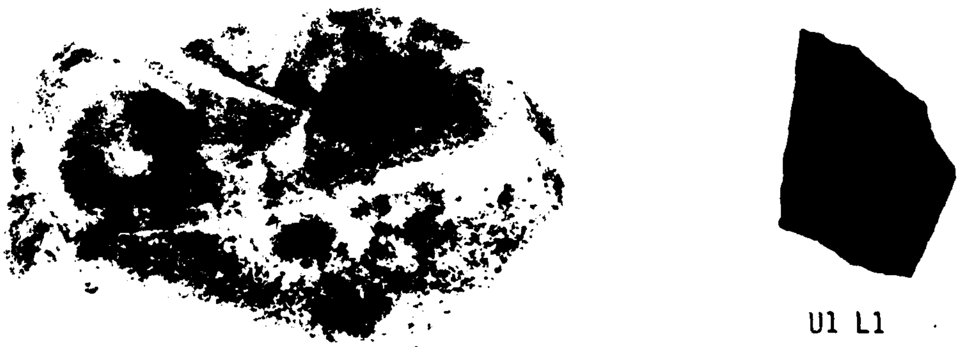
U4 L1

GRINDING STONE

ALL SPECIMENS ARE FROM GENERAL SURFACE COLLECTIONS



GROUND STONE



U1 L1

GEN. SURFACE

EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISSISSIPPI
SELECTED NON-CHIPPED STONE ARTIFACTS
PLATE 18

Provenience	60 N 50 W	50 N 50 W	40 N 50 W	60 N 40 W	50 N 40 W	40 N 40 W	30 N 40 W	70 N 30 W	60 N 30 W	50 N 30 W	40 N 30 W
Flake Sizes 1		1		6	2	5	6		2	4	3
2	1	1		1	1	3	1		3	7	2
3		1	3	5	2	3	3	1	3	6	2
4		6	1	3	5	8	1	1	2	6	4
5	3	6	2	1	3	2	2	1	3	2	2
6			3	1		2	2				
7		2					2	1	1		
8										1	
9		1									
10											
11											
12											
Retouched Flakes:Size In ( ).											
Utilized Flakes:Size In ( ).			1(8)		1(8)	1(9)					
PP/K:Type In ( ).		1(1)	1(1)	1		1(1)				1(1)	
Cores			1		2			1			1
Drills											
Ang. Shatter	1	8	3	6	3		3	1	6	5	3
Treated Pebble	1	1								1	
Untreated Pebble		2	6	1	2	2	2	2	2	1	1
Decort Flakes		1		2		6	2	1		3	3
Hematite			1	1			1				
Scraper											
Grinding Stone											
Pitted Stone											
F.C.R.											1
Ground Stone											
Biface											
Abrader											
TOTAL	6	31	22	28	21	33	25	9	22	37	22

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units.

Provenience		30 N 30 W	20 N 30 W	70 N 20 W	60 N 20 W	50 N 20 W	40 N 20 W	30 N 20 W	20 N 20 W	10 N 20 W	80 N 10 W	70 N 10 W
Flake Sizes	1	1	3	2	1	3	4	6	11	7	3	4
	2	3	1			2	3	2	4	11	1	1
	3	1	6	1	1	7	9	2	8	12	2	3
	4	4	2	4	1	4	6	4	8	16	2	2
	5	2	5	1		1	6	1	3	6	3	3
	6		2						1	2		
	7		1									
	8											
	9											
	10											
	11											
	12											
Retouched Flakes:Size In ( ).		1(6)								1(9)		
Utilized Flakes:Size In ( ).												
PP/K:Type In ( ).			1						1(1)			
Cores		1		1				2		5	1	
Drills												
Ang. Shatter		1	2		3		3	2	1	4	2	
Treated Pebble			1						2	1		
Untreated Pebble		1	4				1	1	1	2	1	6
Decort Flakes		1	7	5			2		2	11		1
Hematite								2			1	
Scraper			1									
Grinding Stone				1	1							
Pitted Stone												
F.C.R.			2	1								
Ground Stone			1									
Biface												
Abrader												
TOTAL		16	39	16	7	17	34	22	42	78	16	20

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

Provenience	60 N 10 W	50 N 10 W	40 N 10 W	30 N 10 W	20 N 10 W	10 N 10 W	80 N 0 E	70 N 0 E	60 N 0 E	50 N 0 E	40 N 0 E
Flake Sizes 1	1	2	3	4	6	10		2	1	2	2
2	1	3	5	5		7	3	8	1	3	4
3		4	6	4	6	9	4	5	3	6	1
4	3	2	2	4	6	8	3	1	1	5	1
5	1		1		1	3	2		1	1	
6											
7							1				
8											
9											
10											
11											
12											
Retouched Flakes:Size In ( ).		1(7)							1(7) 1(8)		
Utilized Flakes:Size In ( ).									1(9)		
PP/K:Type In ( ).			1(1)			1(1)					
Cores	1	1	1		1	1	1				
Drills					1	1					
Ang. Shatter			5	2	5	1	1		1	1	3
Treated Pebble			1	1			1			2	1
Untreated Pebble				3	1	1	1	1		1	
Decort Flakes	2	1		5	4	4	1		2	4	1
Hematite										1	
Scraper	1			1							
Grinding Stone							1				
Pitted Stone											
F.C.R.											
Ground Stone											
Biface											
Abrader											
TOTAL	10	14	25	29	31	46	19	17	13	26	13

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

Provenience	30 N 0 E	20 N 0 E	10 N 0 E	0 N 0 E	90 N 10 E	80 N 10 E	70 N 10 E	60 N 10 E	50 N 10 E	40 N 10 E	30 N 10 E
Flake Sizes 1			4	4		4	5	1	2		1
2			15	2		3	6	1	1		1
3			10	3		4	2		3	1	2
4	1	2	3	3		4	3		2		1
5		1	6			1	1	2			1
6		1	1			1		1			
7											
8											
9											
10											
11											
12											
Retouched Flakes:Size In ( ).			1(6)				1(5)				
Utilized Flakes:Size In ( ).	1(8)										
PP/K:Type In ( ).									1(1)		
Cores								1	1		
Drills											
Ang. Shatter	1			3			2		2		1
Treated Pebble				1							1
Untreated Pebble		3	2	1	1			1	1		
Decort Flakes	2	6	15	9	2	3		2	2	1	2
Hematite		1					1				
Scraper		1									
Grinding Stone											
Pitted Stone											
F.C.R.			1			1					2
Ground Stone											
Biface											1
Abrader			1								
TOTAL	5	15	59	26	3	21	21	9	15	2	13

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

Provenience	20 N 10 E	10 N 10 E	0 N 10 E	90 N 20 E	80 N 20 E	70 N 20 E	60 N 20 E	50 N 20 E	40 N 20 E	30 N 20 E	20 N 20 E
Flake Sizes 1		1	6				1		1		2
2		1	2			2			1	2	1
3	3	2	5				2			2	3
4		2	11				2			2	2
5			3					1	1		2
6											1
7					1			1		1	1
8								1			
9											
10											
11											
12											
Retouched Flakes:Size In ( ).											
Utilized Flakes:Size In ( ).											
PP/K:Type In ( ).											
Cores	2		3				1				1
Drills											
Ang. Shatter		1							1		3
Treated Pebble							1				
Untreated Pebble		1	1	1	2	1			3	2	2
Decort Flakes	2	8							1	2	5
Hematite								1			
Scraper	1										
Grinding Stone	1		1								
Pitted Stone											
F.C.R.						1					
Ground Stone											
Biface											
Abrader											
TOTAL	9	16	32	1	3	4	7	4	8	11	23

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

Provenience	10 N 20 E	0 N 20 E	10 S 20 E	60 N 30 E	50 N 30 E	40 N 30 E	20 N 30 E	10 N 30 E	0 N 30 E	10 S 30 E	100 N 40 E
Flake Sizes 1		11	4		1	1			5	6	
2		6	6				2		2	8	1
3		5	10		3	1	1	2	6	1	
4	2	8	6					2		4	
5		3	4			1				7	
6			3					1		1	
7								1			
8			1								
9		1									
10											
11											
12											
Retouched Flakes:Size In ( ).	1(5)	1(6)	1(8)								
Utilized Flakes:Size In ( ).		1(6)							1(5)	1(7)	
PP/K:Type In ( ).		1(2)									
Cores		1		1						1	
Drills											
Ang. Shatter		3	2	1					1	1	
Treated Pebble		2		1							
Untreated Pebble			1						2		
Decort Flakes	1	6	14				1	2	1	4	
Hematite	1		2							1	
Scraper											
Grinding Stone										1	
Pitted Stone											
F.C.R.			2								
Ground Stone											
Biface										1	
Abrader											
TOTAL	5	49	56	3	4	3	4	8	18	37	1

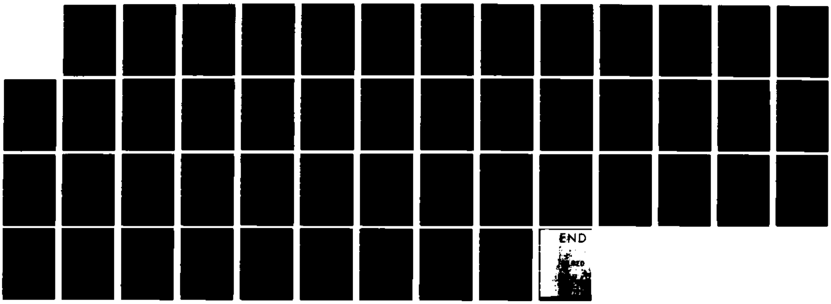
TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

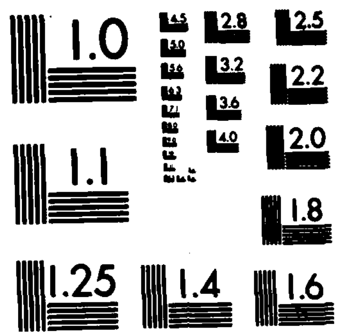
Provenience	80 N 40 E	70 N 40 E	60 N 40 E	40 N 40 E	20 N 40 E	10 N 40 E	0 N 40 E	10 S 40 E	20 S 40 E	130 N 50 E	90 N 50 E
Flake Sizes 1								1			
2				1		1					
3					2			2		1	
4	1			1		1			1		
5				1	1			1		2	1
6											
7								1			
8											
9											
10											
11											
12											
Retouched Flakes:Size In ( ).											
Utilized Flakes:Size In ( ).											
PP/K:Type In ( ).											
Cores								1			
Drills											
Ang. Shatter				1			1				
Treated Pebble											
Untreated Pebble		1	1		2	1		1		1	1
Decort Flakes					1		3	5		1	
Hematite				1							
Scraper											
Grinding Stone											
Pitted Stone											
F.C.R.											
Ground Stone											
Biface											
Abrader											
TOTAL	1	1	1	5	6	3	4	12	1	5	2

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

AD-A126 863 EVALUATIVE TESTING SITES 22M0676 & 22M0677 MONROE COUNTY MISSISSIPPI TOMB..(U) CULTURAL RESOURCE SERVICES INC ATLANTA GA S H SAVAGE JAN 82 DACW01-81-M-A492 2/2

UNCLASSIFIED F/G 5/6 NL





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NATIONAL BUREAU OF STANDARDS-1963-A

Provenience		70 N 50 E	60 N 50 E	40 N 50 E	30 N 50 E	20 N 50 E	10 N 50 E	0 N 50 E	10 S 50 E	140 N 60 E	110 N 60 E	80 N 60 E
Flake Sizes	1							3	1			1
	2							2				
	3							3		3		
	4							6	1			
	5		1						1			
	6						1	1	1			
	7							1				
	8											
	9											
	10											
	11											
	12											
Retouched Flakes:Size In ( ).												
Utilized Flakes:Size In ( ).								1(9) 1(8)				
PP/K:Type In ( ).												
Cores												
Drills												
Ang. Shatter											1	
Treated Pebble		1		1								
Untreated Pebble			1		1	3		1	1			
Decort Flakes		1						6	1			
Hematite												
Scraper												
Grinding Stone												
Pitted Stone												
F.C.R.										1		
Ground Stone												
Biface												
Abrader												
TOTAL		2	2	1	1	3	1	25	6	4	1	1

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.)

Provenience	50 N 60 E	40 N 60 E	30 N 60 E	20 N 60 E	10 N 60 E	0 N 60 E	10 S 60 E	20 S 60 E	150 N 70 E	140 N 70 E	130 N 70 E
1				1	1	2					
2						1		2			
3							1				
4	1				1			1			
5				1		1					
6											
Flake Sizes 7						1					
8											
9											
10											
11											
12											
Retouched Flakes:Size In ( ).											
Utilized Flakes:Size In ( ).						1(8)	1(6)				
PP/K:Type In ( ).											
Cores											
Drills											
Ang. Shatter											
Treated Pebble					1						
Untreated Pebble		1		1					1		
Decort Flakes			1	2			1	1	1	2	1
Hematite											
Scraper											
Grinding Stone											
Pitted Stone											
F.C.R.			1	1							
Ground Stone											
Biface					1						
Abrader											
TOTAL	1	1	2	6	4	6	3	4	2	2	1

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.)

Provenience	120 N 70 E	110 N 70 E	100 N 70 E	60 N 70 E	50 N 70 E	40 N 70 E	30 N 70 E	20 N 70 E	10 N 70 E	0 N 70 E	10 S 70 E
Flake Sizes 1					2		1				
2											1
3		1							1		1
4						1		2			
5							1				
6									1		
7			1					1			
8											
9											
10											
11											
12											
Retouched Flakes:Size In ( ).											
Utilized Flakes:Size In ( ).											
PP/K:Type In ( ).											
Cores											
Drills											
Ang. Shatter				1		1					1
Treated Pebble					1				1		
Untreated Pebble						1		3			
Decort Flakes	1					1					
Hematite						1				1	
Scraper											
Grinding Stone						1					
Pitted Stone											
F.C.R.											
Ground Stone											
Biface								1			
Abrader											
TOTAL	1	1	1	1	3	6	2	7	3	1	3

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

Provenience		20 S 70 E	150 N 80 E	140 N 80 E	130 N 80 E	100 N 80 E	70 N 80 E	50 N 80 E	40 N 80 E	30 N 80 E	20 N 80 E	10 N 80 E
Flake Sizes	1					1						
	2				1							
	3			3							3	
	4	1								2		
	5									1	1	
	6			1				1				1
	7		1									
	8											
	9											
	10											
	11											
	12											
Retouched Flakes:Size In ( ).												
Utilized Flakes:Size In ( ).												
PP/K:Type In ( ).												
Cores												
Drills												
Ang. Shatter												
Treated Pebble												
Untreated Pebble			1	2			1	1	2		1	4
Decort Flakes						1						
Hematite												
Scraper												
Grinding Stone												
Pitted Stone												
F.C.R.					1				1			
Ground Stone												
Biface												
Abrader												
TOTAL		1	2	6	2	2	1	2	3	3	5	5

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

Provenience	0 N 80 E	10 S 80 E	20 S 80 E	140 N 90 E	50 N 90 E	40 N 90 E	30 N 90 E	20 N 90 E	0 N 90 E	10 S 90 E	20 S 90 E
Flake Sizes 1		1									
2				1			1				
3										1	
4	1										
5							1				
6					1					1	
7					1						
8											
9	1										
10											
11											
12											
Retouched Flakes:Size In ( ).											
Utilized Flakes:Size In ( ).											
PP/K:Type In ( ).						1(13)	1(13)				
Cores					1		1	1	1		
Drills											
Ang. Shatter				1	1						
Treated Pebble						1		1			
Untreated Pebble		2		3	5	2	6	4	1		1
Decort Flakes							4			2	
Hematite											
Scraper											
Grinding Stone											
Pitted Stone											
F.C.R.			1	1			1				
Ground Stone											
Biface						2					
Abrader											
TOTAL	2	3	1	6	9	6	15	6	2	4	1

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.)

Provenience		140 N 100 E	130 N 100 E	120 N 100 E	60 N 100 E	50 N 100 E	40 N 100 E	30 N 100 E	20 N 100 E	0 N 100 E	10 S 100 E	140 N 110 E
Flake Sizes	1	2	1									2
	2	2								3		2
	3											
	4		1	1					3			
	5		1									
	6			1				1				
	7		1		1		1					
	8		1									
	9											
	10											
	11											
	12											
Retouched Flakes:Size In ( ).												
Utilized Flakes:Size In ( ).												
PP/K:Type In ( ).												
Cores			1	2								
Drills												
Ang. Shatter			1	1								
Treated Pebble												
Untreated Pebble		4				1	3		2	1		4
Decort Flakes		2	1					1			1	2
Hematite												
Scraper												
Grinding Stone												
Pitted Stone												
F.C.R.								1				
Ground Stone												
Biface												
Abrader												
TOTAL		10	8	5	1	1	4	3	5	4	1	10

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.).

Provenience		130 N 110 E	120 N 110 E	130 N 120 E	120 N 120 E	110 N 130 E	150 E 50 N	140 E 50 N	120 E 50 N	110 E 50 N		TOTAL
Flake Sizes	1					1				1		189
	2											169
	3			1					1			224
	4											212
	5											117
	6	1			1							36
	7											23
	8						1					5
	9	1										4
	10											
	11											
	12											
Retouched Flakes:Size In ( ).												10
Utilized Flakes:Size In ( ).												12
PP/K:Type In ( ).		1								1(1)		15
Cores												41
Drills												2
Ang. Shatter					1							109
Treated Pebble												26
Untreated Pebble		2	1	1	2			1				151
Decort Flakes												205
Hematite					1							18
Scraper												5
Grinding Stone												7
Pitted Stone												
F.C.R.												20
Ground Stone												1
Biface												6
Abrader												1
TOTAL		5	1	2	5	1	1	1	1	2		1608

TABLE 7. Lithic Artifact Frequencies for Controlled Surface Collection Units (cont'd.)

Provenience	U1 L1	U1 L1F1*	U1 L2	U1 L2F1	U1 F1	U1 F2	U1 F3	U1 F4	U1 F5	U1 F6	U1 F6S
Flake Sizes 1	4	30		23	23	5	19	8	22	29	10
2	4	10	1	2	2	1	2	1	1	2	
3	13	1	22		1		1	2	1	2	3
4	86	2	32		2				1	3	1
5	50	4	27				1			1	
6	17	1	13							3	
7	11		7								
8	1		1								
9	2										
10											
11											
12											
Retouched Flakes:Size In ( ).			1(9)								
Utilized Flakes:Size In ( ).	1(7) 3(5)		1(9) 2(10)								
PP/K:Type In ( ).	5(1) 1a 1(14)		2(1) 1		1(1)						
Cores	6		2								
Drills											
Ang. Shatter	19	9	9								
Treated Pebble	2	1	5	1		1		3	1		
Untreated Pebble	23	2	170	4	1					162	8
Decort Flakes	79	5	32		3			2	1	2	
Hematite	9	1	27	1							1
Scraper											
Grinding Stone											
Pitted Stone											
F.C.R.			1								
Ground Stone	1										
Biface			2				1				
Abrader											
TOTAL	338	66	358	31	33	7	24	16	27	204	23

TABLE 8. Lithic Frequencies in Test Unit Levels and Features.
*Flotation; Water Screened Soil Sample aPP/K Fragment, Not Classifiable

Provenience		U3 F9	U3 F10		U4 L1	U4 L1F1	U4 L2		U5 L1	U5 L1F1	U5 F12	U5 F13
Flake Sizes	1	16	1		3	2	1		7	29	3	1
	2	6			5	2			13	4		
	3	1			43		4		38	1		
	4				49		5		74	1		
	5				39		5		34	1		
	6				7		6		14			
	7				3		1		9			
	8				1		1		3			
	9											
	10											
	11											
	12											
Retouched Flakes:Size In ( ).											1(8)	
Utilized Flakes:Size In ( ).					1(9)				1(8) 1(7)			
PP/K:Type In ( ).					1(2) 3		1(1)		1(8) 1(13) 6			
Cores					1		1		4			
Drills					2				2			
Ang. *Shatter*		1			27		2		20	2		
Treated Pebble					1				3			
Untreated Pebble					16	1	10		22			
Decort Flakes		2			48		15		102	7	1	
Hematite					3				1			
Scraper												
Grinding Stone												
Pitted Stone												
F.C.R.									1			
Ground Stone									1			
Biface							1		4			
Abrader					1		1					
TOTAL		26	1		254	5	54		362	43	5	1

TABLE 8 (continued).
Only Features Which Contain Lithics Are Included.

Provenience		U2E L1	U2E L1F1	U2 West	U2 F7	U2 F7A		U3 L1	U3 L1F1	U3 L2	U3 L2F1	U3 L3
Flake Sizes	1	7	37	2	67	46		14	16	13	50	2
	2	9	5	3	1	3		29	1	22	3	3
	3	24	1	11	4	3		46		161	10	6
	4	46	3	20	11	1		74		292	3	10
	5	22		5	4	3		13		85	3	3
	6	3		1	5	1		3		16		
	7	2	1	1		1		3		4		3
	8	3			1					1		
	9									1		
	10											
	11											
	12											
Retouched Flakes:Size In ( ).										1(7)		
Utilized Flakes:Size In ( ).		2(7)						1(9)		1(6)		
PP/K:Type In ( ).		3(1) 1		1(1) 1	1(1)			1	1(1)	7(1) 3		
Cores		4		2		1				12		
Drills										1		
Ang. Shatter		31	10	11	7	1		30		127	9	9
Treated Pebble		3		2		1				14	1	1
Untreated Pebble		21		20	2	2		2		39		4
Decort Flakes		78	5	31	13	4		59		327	2	
Hematite		3			5	2		2		2		
Scraper		1										
Grinding Stone												
Pitted Stone										1		
F.C.R.		2		1						6		
Ground Stone												
Biface		1										
Abrader										1		
TOTAL		266	62	112	[illegible]	69		277	18	1137	81	41

TABLE 8. Continued.
Only Features Which Contain Lithics Are Included.

Provenience	U5 F14		TOTAL								
Flake Sizes 1	36		272								
2	2		58								
3	3		136								
4	1		257								
5			162								
6			61								
7			31								
8			7								
9			2								
10											
11											
12											
Retouched Flakes:Size In ( ).			2								
Utilized Flakes:Size In ( ).			10								
PP/K:Type In ( ).			24								
Cores			14								
Drills			4								
Ang. Shatter	3		92								
Treated Pebble			18								
Untreated Pebble	3		422								
Decort Flakes	1		300								
Hematite			43								
Scraper											
Grinding Stone											
Pitted Stone											
F.C.R.			2								
Ground Stone			2								
Biface			8								
Abrader			2								
TOTAL	49		1929								

TABLE 8. Continued.

Classes Seven and up were recovered from either the surface collections or the unit levels/features. Some of this lack of larger flakes may be attributed to the shift toward smaller flakes during the Late Woodland-Mississippian periods due to the reduction in size of the tools being made (Ensor 1978:15-16). If, however, the mean area of retouched and utilized flakes is calculated (mean = 5.02, std. dev. = 3.02) for the 37 examples recovered, it then appears that the larger flakes produced on the site were used as tools themselves. It is also probable that these larger flake classes were worked down into other tool types. These two activities would then account for the low frequencies of large flakes. Another possibility is that flake size is eventually restricted by cobble size, thus truncating the upper end of the flake size distribution. This phenomenon is not necessarily a bias toward smaller flakes.

Following the breakdown of the lithic artifacts into the categories specified above and the tabulation of the results, the mean flake size was determined for each provenience unit which contained at least five examples. The standard deviation was also calculated, and a table of these statistics is given below.

Table 9. Mean Flake Size and Standard Deviation in Surface Collection Units.

Provenience	Mean	Std. Dev.
Surface Collection Units:		
50N50W	1.71	1.68
60N40W	0.72	0.52
50N40W	0.91	0.43
40N40W	0.88	0.57
30N40W	1.15	1.07
60N30W	0.99	0.82
50N30W	0.80	0.63
40N30W	0.78	0.43
30N30W	0.85	0.42
20N30W	1.14	0.80
50N20W	0.70	0.32

Table 9. Continued

Provenience	Mean	Std. Dev.
40N20W	0.84	0.42
30N20W	0.63	0.38
20N20W	0.79	0.59
10N20W	0.82	0.46
80N10W	0.83	0.50
70N10W	0.78	0.48
50N10W	0.60	0.24
40N10W	0.62	0.31
30N10W	0.59	0.27
20N10W	0.70	0.35
10N10W	0.66	0.36
80N0E	1.02	0.79
70N0E	0.53	0.18
50N0E	0.73	0.32
10N0E	0.74	0.86
0N0E	0.59	0.29
80N10E	0.76	0.51
70N10E	0.59	0.34
50N10E	0.63	0.28
30N10E	0.75	0.43
10N10E	0.68	0.29
0N10E	0.80	0.39
60N20E	0.73	0.29
30N20E	1.09	1.04
20N20E	1.14	0.91
0N0E	0.86	1.25
10S20E	1.01	0.91
10N30E	1.49	1.24
0N30E	0.49	0.18
10S30E	0.84	0.56
10S40E	1.30	1.24
0N50E	0.96	0.80
0N60E	1.18	1.33
130N90E	2.25	1.94
Excavation Unit Levels		
Unit 1, Level 1	1.46	1.08
Unit 1, Level 1 Flotation	0.50	0.42
Unit 1, Level 2	1.44	0.79
Unit 1, Level 2 Flotation	0.31	0.046

Table 9. Continued

Provenience	Mean	Std. Dev.
Unit 2, Level 1	1.14	0.91
Unit 2, Level 1 Flotation	0.44	0.52
Unit 2, Level 1, West	0.99	0.54
Unit 3, Level 1	0.87	0.51
Unit 3, Level 1 Flotation	0.30	0.04
Unit 3, Level 2	1.02	0.56
Unit 3, Level 2 Flotation	0.44	0.35
Unit 3, Level 3	1.17	0.94
Unit 4, Level 1	1.15	0.68
Unit 4, Level 1 Flotation	0.36	0.08
Unit 4, Level 2	1.67	1.17
Unit 5, Level 1	1.25	0.93
Unit 5, Level 1 Flotation	0.16	0.21
Features		
F. 1	0.[illegible]7	0.03
F. 2	0.32	0.06
F. 3	0.37	0.25
F. 4	0.38	0.09
F. 5	0.34	0.14
F. 6	0.68	0.93
F. 6A	0.43	0.19
F. 7	0.61	0.73
F. 7A	0.59	0.46
F. 8	0.55	0.85
F. 9	0.35	0.06
F. 14	0.34	0.15

Two important points have become clear as a result of the tabulation of means and standard deviations for the lithic assemblages. The first concerns recovery strategy, while the second deals with the lithic reduction sequence questions introduced at the beginning of the lithic analysis section.

It is evident from the mean flake size statistics that small flake classes (Classes One and Two) are not being recovered during the dry screening process in sufficient numbers to reflect an accurate picture of the whole lithic production sequence in a given locus. Even some surface collection units reflect higher percentages of small flakes than their correspondent Level One excavated materials. After the rains which occurred during the surface collection phase, the dark red flakes--even of the smallest sizes--were easily seen on the surface, but these same flakes were not picked out of a dry screening process using one-quarter inch screen. The failure to pick out the Class One and Two flakes introduces a definite bias into the interpretation of lithic activity occurring at a given site locus by truncating the small flake size end of the distribution. However, in the event that a cluster toward small flaking activity is discerned during the normal recovery processes, such a cluster would be of even greater importance when the natural bias is considered. During the flotation process, the method of recovery enabled the smaller flakes in our soil samples to be collected, and the means and standard deviations for these proveniences are included in Table 9. Note the significant difference between the means of the soil samples and those of the unit levels from which the samples were taken. Also, compare the raw frequencies recovered, from Table 8.

In light of these developments, the following methodological recommendations are made:

1. Excavated dirt should be passed through one-eighth inch mesh screen, in order to insure that the smaller flake classes are recovered.

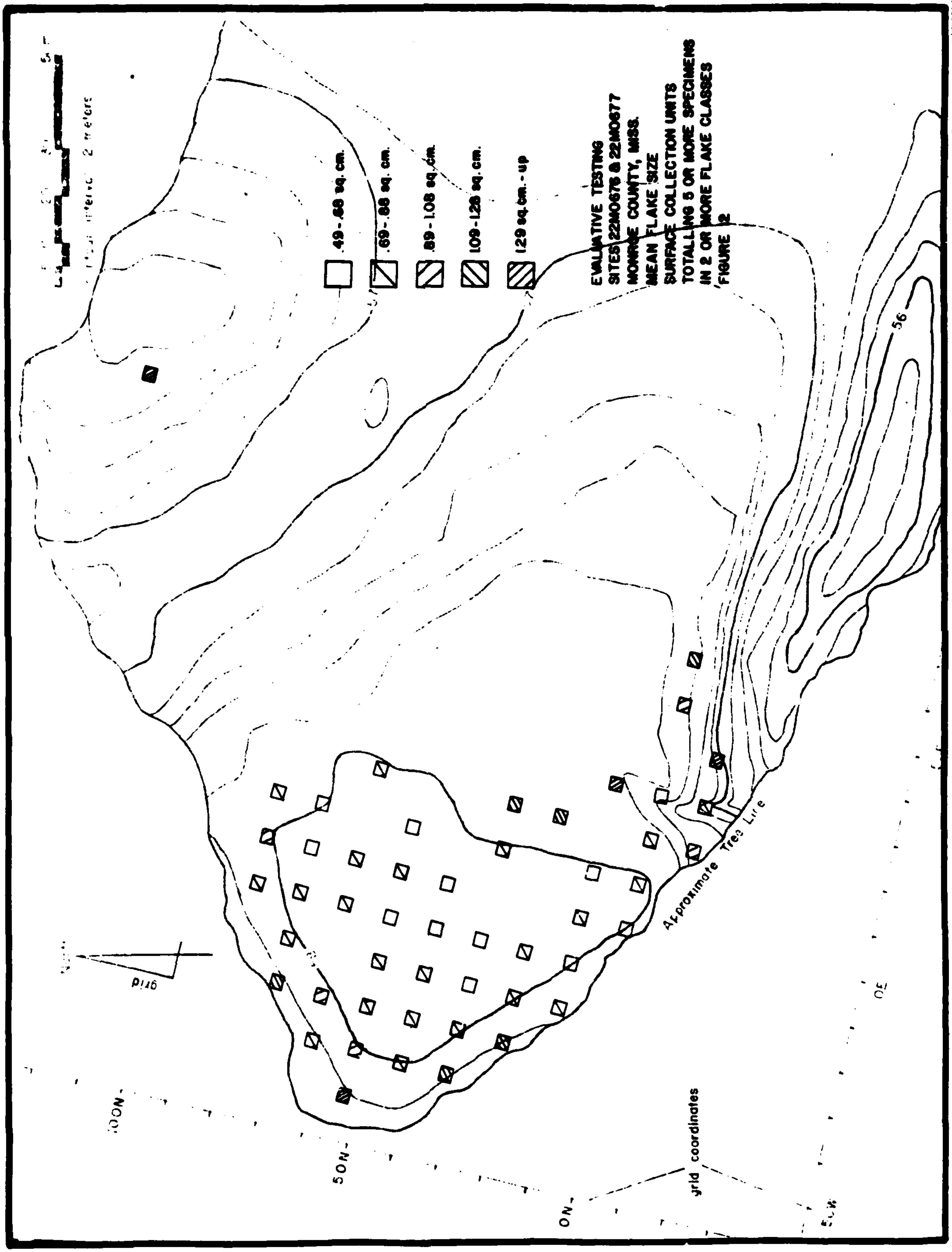
2. All material should be water screened if possible,

3. In the event that neither of the two alternatives above is possible, large soil samples (25 to 30 percent) of one-by-one meter or similar size units should be recovered from each provenience for later water screening through one-eighth inch or smaller mesh. This can usually be accomplished during the laboratory phase of a given project.

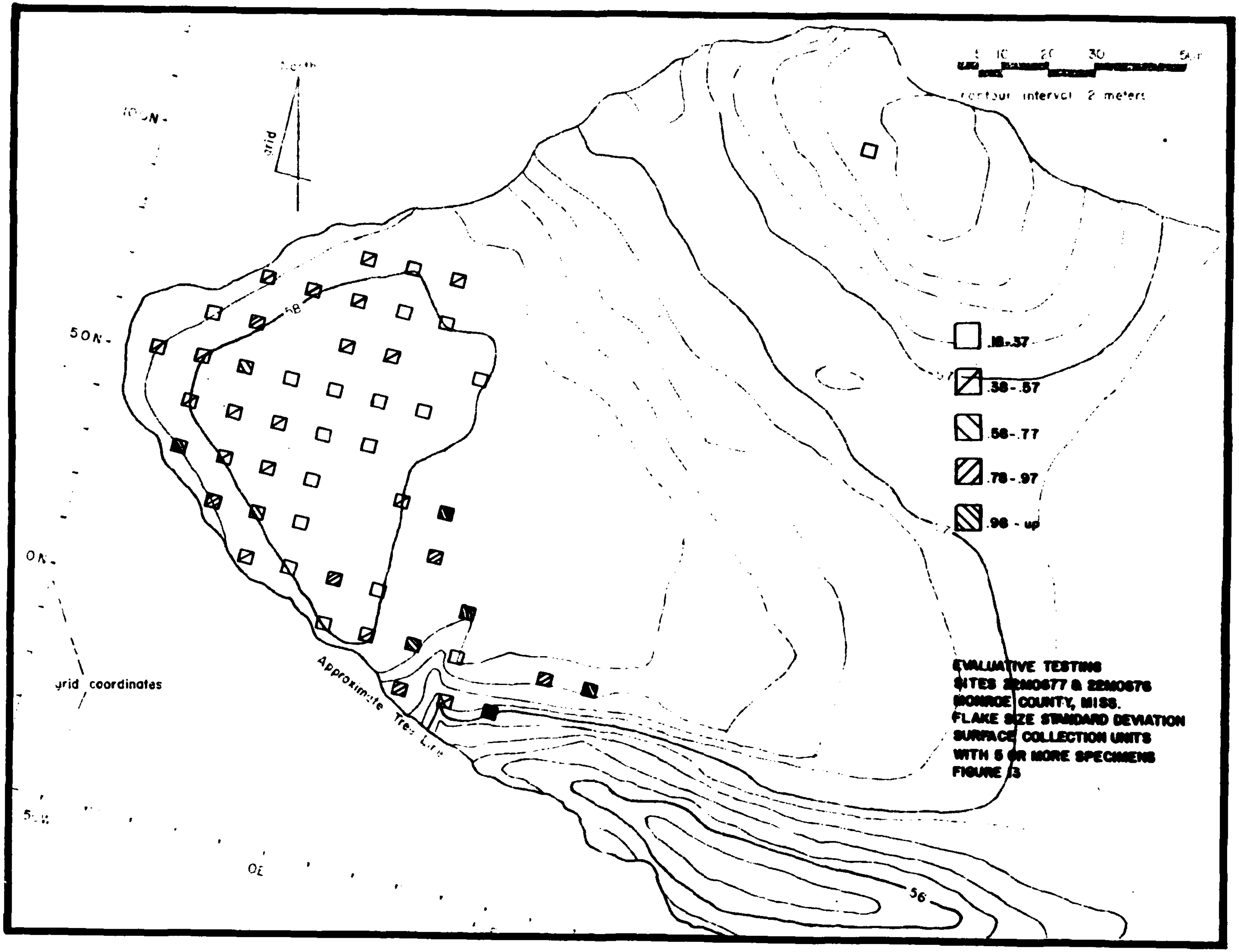
In order to see if any meaningful patterns of lithic reduction/use were present at 22MO677, the means and standard deviations of flake class frequencies were obtained from each controlled surface collection unit (Table 9). These values were then intervalized and plotted separately on site maps showing the location of each collection unit (Figs. 12 and 13). As in the case of the statistics themselves, only those units with five or more flakes are represented.

The scatter plots indicate that there is a concentrated area of small flaking activity occurring in the center of the site. Both small means and low standard deviations show that this small flake producing activity was occurring virtually exclusive of any larger flaking activity. A situation such as this suggests that an area in the center of the site was devoted exclusively to final lithic reduction stages and resharpening activity. Other areas which exhibit larger mean flake sizes also show higher standard deviations and are located around the perimeter of the site. A large mean flake size indicates areas of primary or secondary reduction activity, while a high standard deviation indicates that the range of activity is more diverse. The occurrence of a large mean with a high standard deviation shows that, while large flake producing activity occurred at a given locus, smaller flaking activity also occurred. At present it is not possible to determine whether the smaller flakes were produced during the larger flaking activity or during a temporally distinct episode of final reduction/use. Only when the standard of deviation is small can a specific reduction stage be isolated. It may be possible, through the use of the color changes noted by Ensor (1978), to separate two chronologically distinct episodes of reduction activity at a single locus and then apply the mean and standard deviation statistics to the color separated categories to determine whether a shift in function occurred through time; at present this would be difficult, since the range of chert color variation per temporal period has not yet been fully explored.

The Pearson product-moment correlation was determined between the means and standard deviations of the surface collections following Nie, et al.



EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISS.
MEAN FLAKE SIZE
SURFACE COLLECTION UNITS
TOTALLING 5 OR MORE SPECIMENS
IN 2 OR MORE FLAKE CLASSES
FIGURE 12



EVALUATIVE TESTING
SITES 22MO677 & 22MO676
MONROE COUNTY, MISS.
FLAKE SIZE STANDARD DEVIATION
SURFACE COLLECTION UNITS
WITH 5 OR MORE SPECIMENS
FIGURE 13

(1975:280) and resulted in a correlation of .9012. Such a high degree of correlation is significant ($p > .0001$), and indicates a definite relationship between the stage of lithic reduction and the range of activity present. As the lithic material is processed at 22M0677, there is a definite trend toward more specialization and localization in the later stages of lithic reduction. The final reduction stages took place in the center of the site, while increasingly earlier stages of reduction are located toward the edges of the site.

Faunal and Floral Remains

Faunal and floral remains were recovered during a combination flotation/water screening operation. All soil samples recovered during the excavation phase were subjected to the procedure, after first removing two samples from each provenience for soil chemistry tests and curation. Five hundred milliliter samples were kept from the proveniences for these purposes, except in the case of Feature 12. Two hundred fifty milliliter samples were set aside from this provenience because of the small volume of excavated material which it contained. Although soil chemistry samples were set aside, no such tests were conducted due to time and budget constraints.

All biological materials were then placed in general categories based on probable animal size and bone type and general classes of nuts and seeds. It should be emphasized that the results are based on a preliminary analysis, which, due to budget constraints, was all that could be accomplished at this time.

Tables 10 and 11 present the results of the zooarcheological and ethno-botanical analysis. Table 10 represents faunal remains, and Table 11 shows the botanical remains. Table 10 classifies long bone and cranial elements by probable animal size. It should be noted that these size classes are general non-metric classifications. The small class includes fauna similar in size

Provenience	U1 F1	U1 F2	U1 F3	U1 F4	U1 F5	U1 F6	U1 F6A	U2 F7	U2 F7A	U2 F8	U3 F9	U5 F14	U1 L1	U1 L2	U2 L1
Long Bone Frag. (Small animal)	6	12	5	12		5	1	10	1	15					
Long Bone Frag. (Medium animal)	9	2	5	3		1	2	5	1	24					
Long Bone Frag. (Large animal)							1	7	1	9				1	
Total Long Bone	15	14	10	15	0	6	4	22	3	48			0	1	0
Cranial Bone (Small animal)	3	4	2	3	2					28					
Cranial Bone (Medium animal)				1				6	2	10					
Cranial Bone (Large animal)			3							1					
Total Cranial	3	4	5	4	2	0	0	6	2	39			0	0	0
Irregular Bone	2			1				3	1	15					
Fish Bone			1						1						
Shell Fragment															
Unidentifiable	35	8	18	21		5	9	68	14	326	4	3	9	11	3
Total Faunal	55	26	34	41	2	11	13	99	21	428	4	3	9	12	3

Table 10. Faunal Remains.

Provenience	U2 L2	U3 L1	U3 L2	U3 L3	U5 L1	U2 L1	U2 L2	U2 F7	U2 F7A	U2 F8	U3 L2	TOTAL			
Long Bone Frag. (Small animal)												67			
Long Bone Frag. (Medium animal)									1			53			
Long Bone Frag. (Large animal)						2	1	2	2	26	3	55			
Total Long Bone		0	0	0	0	2	1	2	3	26	3	175			
Cranial Bone (Small animal)												42			
Cranial Bone (Medium animal)												19			
Cranial Bone (Large animal)						2			2			8			
Total Cranial		0	0	0	0	2	0	0	2	0	0	69			
Irregular Bone*			3			1					1	27			
Fish Bone												2			
Shell Fragment							1	2				3			
Unidentifiable		2	5	1	2							544			
Total Faunal		2	8	1	2	5	2	4	5	26	4	820			

*Scapular, pelvic, rib and vertebral fragments

Table 10. Faunal Remains (continued).

FLORAL

Provenience	Nuts	Unident.	Total
FEATURE Floatation			
Unit 1 F 1	12		12
F 2	12		12
F 3	8		8
F 4	1		1
F 6	4		4
F 6A	1		1
Unit 2 F 7	32	3	35
F 7A	7		7
F 8	117		117
Unit 3 F 9	1		1
Floatation by Level (Soil Samples)			
Unit 1 L 1	7		7
L 2			
Unit 3 L 2	1		1
Unit 5 L 1	1	1	2
Dry Screen			
Unit 2 L 2	1		1
F 7	1	5	6
Unit 3 L 1		13	13
Unit 5 L 1	1		1
TOTAL	207	22	229

Table 11. Floral Remains.

to small rodents (mice, voles, shrews) or reptiles. The medium class includes fauna similar in size to rabbits, raccoons and beavers, while the large class includes fauna similar to deer. Although such a classification scheme is very subjective it does allow a general perception of the kinds of fauna being exploited.

No evidence of plant domestication or incipient agriculture was found in the botanical remains. None of the common domesticates (i.e., corn, squash) were present, but large quantities of nut fragments were found. These results indicate a reliance on a hunting/gathering economy. This is not to rule out the presence of agriculture at 22MO677 during its occupation but rather to stress the limited extent of the ethno-botanical samples obtained. The procurement of additional materials of this nature should be a primary research orientation in further studies instituted at the site.

V. SUMMARY AND RECOMMENDATIONS

Based on the data recovered and analyzed from Sites 22MO676 and 22MO677 the following conclusions and recommendations can be made. Site 22MO677 contains what appears to be structural remains with aligned post holes existing in Units One, Three and Five. Other intact subsurface features include several pits, one of which may represent human burial, though poor preservation of unburned bone would not allow definite identification as such. Large areas of undisturbed midden deposits overlay parts of the site, and analysis of ceramics from excavated parts of this midden indicates that 22MO677 dates to the Terminal Miller subphase. Based on the changing ratio of plain to cord marked pottery types, two significantly distinct phases of occupation may be discernable during the Terminal Miller.

Analysis of lithics recovered from the surface collections shows an area in the center of the site devoted almost exclusively to final reduction/use of tool types, while increasingly diverse lithic reduction activities occurred toward the edges of the site. A small, Middle Woodland occupation has also been located in the southeastern part of the larger 22MO677. Auger tests in this area failed to reveal any subsurface remains.

Site 22MO676 was investigated during the surface collection and machine stripping phases of the project. No cultural material was detected below the plowzone in this area. The site is a small surface scatter dating to the Early Miller IIIa period. This assessment is tentative and based on the small amounts of diagnostic ceramics and lithics recovered from the site. Field clearing activities have destroyed the integrity of 22MO676.

The significance of Site 22MO677 is that much of the subsurface midden deposits representing a Terminal Miller component is intact. Since few one or two component sites dating to the Late Woodland period have been thoroughly investigated along this portion of the Tombigbee River, Site

22MO677 offers an excellent data base with which to refine current views on functional and temporal placement of Terminal Miller hamlet sites. From a research perspective, 22MO677 is attractive for several other reasons:

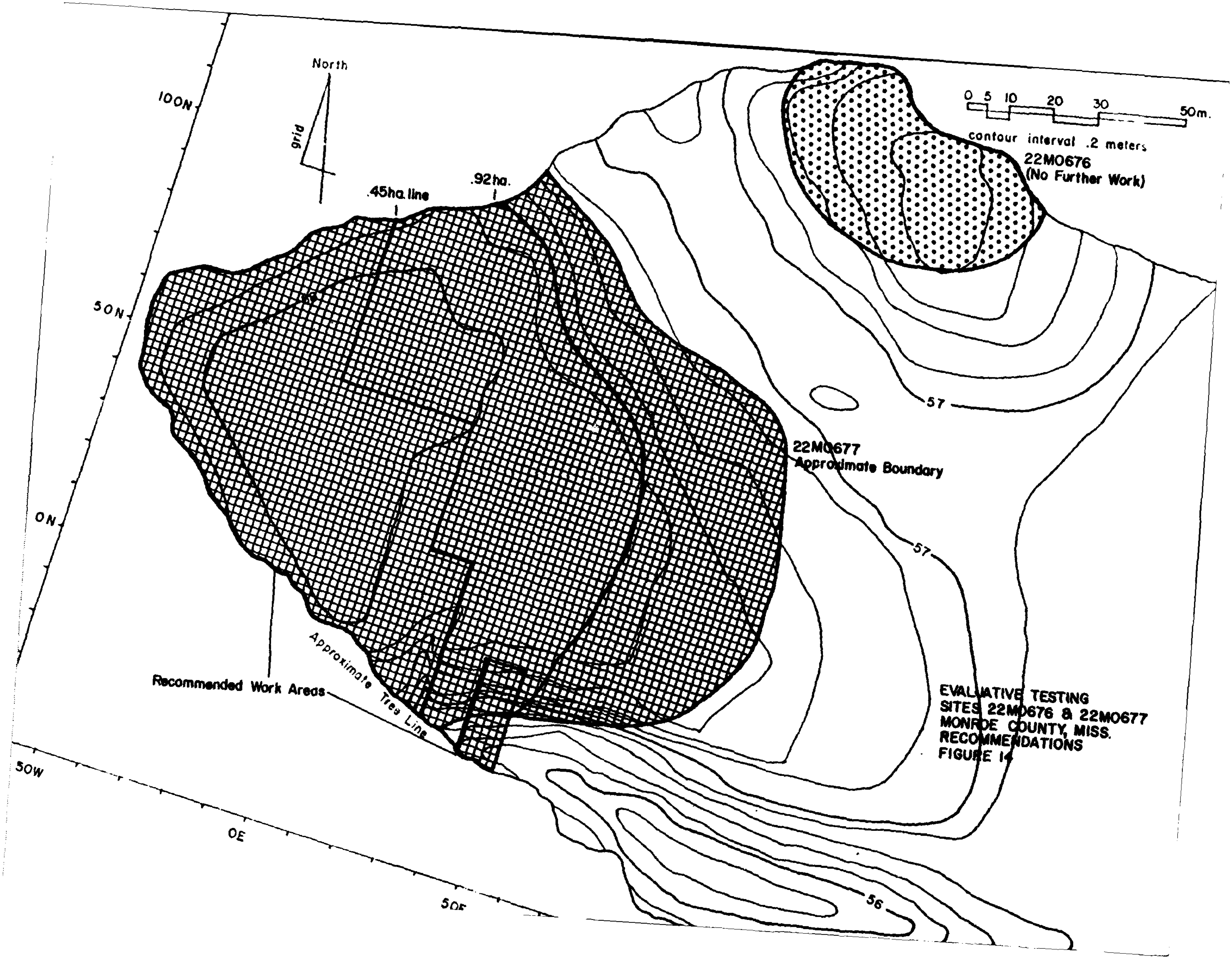
1. The site is small and well defined.

2. Intact subsurface midden deposits, features and possibly structural and human skeletal remains exist at the site.

3. The site has been disturbed by agricultural activity for no more than 10 to 15 years so that various research problems concerning sampling strategy (i.e., surface vs. subsurface artifact patterns) and intra-site activity patterning of one or two component sites may be addressed without the complicating effects of many years of cultivation. The adverse effects of forest clearing appear to have created only a low level of disruption.

Based on the above findings, CRS recommends that large scale excavations be conducted at 22MO677 and that no further work be done at 22MO676. The major occupation at 22MO677 is located in the western .92 hectare; excavations should concentrate at the western most end of the site (.45 hectare), since activity seems to have focused in this area (Fig. 14). Work should center on exposing and recording structural remains and other features. Although preservation conditions at the site are variable--unburned bone preservation being extremely poor--enough floral and faunal remains were recovered during testing to make their recovery and analysis during excavation a major concern. Investigation of the slope southeast of the site plateau may yield information on subsistence patterns.

The documentation of a shift in site occupation loci should be further investigated, as well as the changing ratios of plain to cord marked ceramics, in order to determine whether subphase division may be substantiated. Carbon samples should be obtained from areas exhibiting different ceramic ratios, so that Carbon 14 analysis may be performed. It may be



EVALUATIVE TESTING
SITES 22MO676 & 22MO677
MONROE COUNTY, MISS.
RECOMMENDATIONS
FIGURE 14

possible to determine whether the ratios represent a chronological development or functional differences.

To aid initially in the excavation of 22MO677, mechanical stripping with a tractor and box blade is recommended to remove disturbed plowzone material. This stripping should be conducted with several points in mind:

1. Stripping of intact midden deposits should be avoided if possible. Late features are present--features which cut into earlier midden deposits and have similar colors and textures.

2. Stripping should be planned so that a minimum amount of stripped, unexcavated surface is exposed. Soils at 22MO677 are fine clay loams which have a high shrink-swell potential. Under dry, warm conditions, exposed midden areas will discolor and dehydrate, resulting in severe soil contraction and cracking and subsequent damage to the midden deposits. It may be necessary to have the equipment standing by at this site with a crew member capable of using it, so that only those areas which are excavated at a given time would need to be stripped.

3. Stripping should be done when soil moisture is high but not at saturation. This will result in a cleaner, clearer cut, reduce the number of passes necessary, and at least partially eliminate uneven cutting due to local variations in moisture retention rates.

Stripping should be closely coordinated with block excavations so that excavations may be used to guide the placement of subsequent stripping operations. In conjunction with the machine stripping, water screening through one-eighth inch mesh screen is recommended. Water screening is necessary due to the cohesive nature of the site soils, and the use of small mesh screen is recommended to recover the small flaking debris associated with final reduction and use phases of lithic manufacture. If screening through the small mesh is not possible at the site, large soil samples should be recovered and subjected to a fine flotation-water screening operation during laboratory phases of the project. An ample water supply is a major concern at 22MO677, since the nearest permanent water source is located appropriately 115 meters west of the site. A sump may be a practical solution to the problem, but storage requirements for a large scale project will be high, and reuse of the water will result in decreasing water quality as the operation proceeds.

Initial project planning involving the principal investigator, field director and field assistant should take approximately ten man-days. Planning should include visits to 22MO677, grid layout planning, stripping strategy, equipment collections, and logistics planning.

With the aid of mechanical stripping and water screening, full-scale excavations at 22MO677 should take approximately 12 weeks with a crew of eight excavators, four water screeners, a field director and assistant field director. It is anticipated that human burials might also be found, in which case a physical anthropologist (10 man-days) should also be on call to supervise burial excavation and record and measure all skeletal elements discovered. This is of particular importance since skeletal preservation is likely to be poor. These estimates translate into approximately 850 man-days for field work. Field work should involve the screening of all excavated materials, site mapping and reclamation of disturbed areas. The 850 man-days for field work should allow for approximately 900 square meters of 22MO677 to be stripped and excavated. Excavation of 900 square meters represents 20 percent of the .45 hectare area which CRS has recommended as the area of focus for excavational activity. (This should not be confused with the .92 hectare occupation area.) This equates to the total excavation of 15 square meters per work-day including feature excavation and mapping and water screening all soils. This should be adequate to define structural and associated features important in defining and refining 22MO677's functional and temporal association with other sites in the area.

There will be potential for very high artifact yields from 22MO677, necessitating man-day estimates of approximately 400 man-days for data analysis. This estimate includes the full-time services of a lab director and three technicians during and after the field work phase.

Analysis should minimally include the cleaning, classification and cataloging of all artifacts recovered and the analysis, compilation and graphic display of site-specific characteristics. The large number of artifacts potentially recoverable from 22MO677 will likely necessitate the use of computerized data management facilities.

The man-day estimate above (400 man-days) does not include report preparation and finalization. That will ultimately depend on the number of drafts required. It is, however, anticipated that report production will begin during the late stages of data analysis. CRS recommends that 130-150 man-days be set aside for report writing, graphics and reproduction. This estimate assumes that two persons will produce the report in 13 to 15 weeks.

In formulating a research design for excavations at 22MO677, several topics should be addressed:

1. Examine intrasite variability in terms of functional specialization as it is revealed through artifact type distributions and feature patterning.

2. Explore intrasite correlations between functional variability versus physical geographic factors (i.e., slope, elevation, soil properties).

3. Compare site characteristics of 22MO677 with those of sites showing similar temporal affiliation and confirm and refine the parameters of "Late Miller III-Terminal Miller". Temporal definition of 22MO677 will require C-14 dating.

4. Develop a ceramic classification system which is more objectively

(i.e., quantitatively) defined. For example, the development of a set of ceramic standards to assess the percentage of different paste components such as fiber, sand and grog.

5. Expand the research goals to include the further development of quantified lithic analysis, integrating, for example, chert color analysis or flake size analysis with various components of the lithic assemblage.

6. Further refine mechanical stripping techniques. Stripping aids such as mechanical watering at different stages of the stripping operation or shovel testing as a midden depth monitoring device prior to stripping may prove useful.

VI. MANHOUR EXPENDITURES

The following matrix indicates the number of manhours expended during the testing program on various project tasks.

	Principal Investigator	Field Assistant	Tractor Operator	Typist	Total
Project Planning	32	8			40
Literature Information Search	8				8
Fieldwork (Total)					(204)
Baseline/grid installation	8	8			16
Surface collection	16	16			32
Auger, Shovel Testing	3	3			6
Sump Excavation			4		4
Mechanical Stripping	4	4	4		12
Structural Testing	56	56			112
Down Time (pump failure)	8	8			16
Land Reclamation			6		6
Data Analysis (total)					(286)
Washing	8	80			88
Lithic Analysis	12	40			52
Ceramic Analysis	16	64			80
Drafting		56			56
Management Summary	8			2	10
Report Preparation (Total)					(216)
Writing	8	120		8	136
Editing	24			8	32
Graphic Finalization		24		24	48
TOTAL					754

Tasks where anticipated efforts were required included fieldwork and data analysis. Minor extentions were required during the reporting phase because the large number of tables in the report. Field hour overruns were resulted from down time, sump excavation, mechanical stripping and the need for land reclamation; however, the greatest labor overruns were incurred during the data analysis phase. This was due primarily to the extremely high artifact yields from surface collections and structured test units.

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APPENDIX A

RESEARCH DESIGN AND METHODOLOGICAL CONSIDERATIONS

As stated in the Scope of Work, the primary objectives of the Site 22Mo677 Evaluative Testing Program are related to the definition of the type and integrity of the cultural resources present, the site's horizontal and vertical configuration and its relationship to nearby Site 22Mo676.

Each primary objective can be reduced to subobjectives which orient the project to address general methodological as well as specific local research problems. The general problems are related to defining the most appropriate methods for evaluating and comparing resources such as 22Mo677 and 22Mo676. More specific problems relate to the refinement of local cultural sequences through the examination of intra- and inter-site temporal variability in artifact patterning and morphology. How this culturally-dependent variation aligns with local environmental factors cannot be adequately addressed by testing only two sites; however, any explained inter-site variation will be of interest in terms of temporal and micro-environmental differences between Sites 22Mo677 and 22Mo676.

On the most specific level, the tentative placement of these sites into a late Miller III Period phase should be confirmed through ceramic/lithic analyses. If these sites can be defined as transitional, key information on areal cultural evolutionary processes might be recovered and provide a limited but important data set for inter-site comparative purposes.

The methodological strategies used to approach the aforementioned problems include a literature and information review, controlled systematic surface collections and structured testing, followed by descriptive and interpretive data analysis. Prior to field work, the principal investigator will conduct literature and information searches at Mississippi State University in Starkville and the University of West Florida Field Headquarters in Fulton. The compiled data will be used in the subsequent field, laboratory, and reporting phases of the project to address various research problems. Rodeffer (1980), Blakeman (1973) and Gagliano et al. (1979) were reviewed by the author prior to preparing this research design and methodology statement.

Based on these data and personal communication with Ernie Seckinger of the Mobile COE office, controlled systematic surface collections of Sites 22Mo677 and 22Mo676 will first be necessary to secure comparable, statistically valid and unbiased data. Initially, transit set baselines will be installed around each site to parameterized horizontal components. Stake intervals along these baselines will be ten meters. Two-meter-wide transects will be collected perpendicular to and between baselines, ultimately creating a system of intersecting collection transects griding each site. Ideally, heavy rainfall should occur at these sites to maximize artifact visibility prior to collecting, but this may not be possible if rain does not occur in a very limited amount of time.

Total collections will be made at all two-by-two meter transect intersections and the remaining area scanned for temporal and functionally diagnostic artifacts and culturally related soil anomalies. As many as 200 formal units may be collected at Site 22Mo677, while 20 to 30 units will probably suffice at 22Mo676. Site-centered, perpendicularly oriented auger test transects will be placed at ten-meter intervals along selected transects to assess Site 22Mo677's vertical extent. Soil characteristics and artifacts recovered from auger tests will be recorded by vertical provenience.

Based on the preliminary field assessment of surface artifact distributions and simple, unstructured, subsurface testing, two strip trenches will be placed along the major and minor axes of Site 22Mo677 and an additional "non site" trench will be placed to the east of Site 22Mo677. A strip trench will also be placed along the major axes of Site 22Mo676. These trenches will be excavated by tractor and box blade to a level just below the present loose plow zone. This should reveal intact cultural remains.

A total of five one-by-two-meter test units will be excavated in areas exhibiting high surface artifact yields, culturally induced soil anomalies, subsurface cultural strata discovered during auger testing and stripping and/or any combination of these which maximizes the amount of extractable archeological information with the least amount of unnecessary impact. Excavation of one-by-two units will proceed in 10-cm arbitrary levels unless finer natural stratigraphy is evident. Soils from each level will be screened through quarter-inch hardware cloth, with all artifacts recorded and plan views photographed and mapped. This process will be repeated until culturally sterile subsoil is encountered, at which time profiles will be mapped and photographed. If features are discovered, associated soils will be excavated separately and a representative soil sample reserved for floatation, chemical analysis and curation.

Units will not be arbitrarily expanded to explore features, nor will human skeletal remains be exhumed. Instead, human skeletal material will be mapped, photographed and reburied intact until full-scale mitigative activities can be conducted. If present, carbon samples will be collected for dating purposes; however, carbon dating is not within the present project scope. Faunal and floral remains will also be collected.

These testing efforts will be the basis for assessing the site's actual potential for yielding additional significant archeological data. Testing data will possibly solidify each site's chronological position, provide contextual data on each site's general function and subsequently yield preliminary data on some facet of cultural evolution in this region of the Tombigbee River Valley.

Laboratory analysis of recovered materials will follow standard archeological procedures. Upon returning to CRS, all artifacts will be washed, identified and catalogued. Prehistoric artifacts will be divided into lithic and ceramic categories and analyzed accordingly. The lithic analysis will involve a careful inspection of all lithic materials (under magnification if necessary) to identify various stages of lithic reduction, use and type of lithic material. Categories representing specific lithic reduction stages and general tool types will be developed or modified from existing classificatory schemes (Blakeman 1975; Rodeffer 1980) for inter- and intra-site comparative purposes. Projectile points will be classified and typed by general morphological features in an attempt to place them in a general temporal framework.

Prehistoric ceramics will be carefully inspected to determine tempering agent, surface treatment and if possible vessel morphology. Temporal placement of ceramics will be based in part on field collected data, literary sources, and personal communications.

Following the purely descriptive stages of data analysis, intra-site artifact frequency distributional data will be compiled and compared with previously recorded data for 22Mo677 and 22Mo676 and other sites in the area. It is anticipated that ample data will be collected to allow some level of statistical analysis for assessing the degree of association between 22Mo677 and 22Mo676. In addition, intra-site variability in artifact patterning and morphology will be examined utilizing product-moment, partial and/or multiple correlation analysis between and among various artifact categories. Culture change will be examined by intra-test unit, inter-level comparisons of cultural remains, with statistical tests applied when possible.

In concert, the methodology described above will address the research problems and supply all data needed to assess these sites' archeological significance in terms of Natural Register of Historic Places criteria. The processed artifacts will be temporarily curated at the CRS office in Atlanta until a permanent local curation site can be found.

The project team will be headed by Steve Webb who will serve as principal investigator and author, statistician and field director. Steve Savage will be assisting Webb during the field, laboratory and reporting phases of this investigation.

CRS anticipates that the literature/information search will require 2 man-days, the field work 10 man-days, and the analysis phase 8 to 10 man-days depending on the amount of data recovered. The initial reporting phase will require 15 man-days with a management summary submitted upon request. The draft report (ten copies) will be submitted to the Mobile District Corps office within 60 man-days after terminating field work. All reporting standards and specifications set forth in the scope of work will be met. An approximate time schedule is attached.

APPENDIX B

PROJECT PERSONNEL

ROBERT STEPHEN WEBB

Education

B.A., University of Tennessee, Anthropology, 1975
M.A., University of Tennessee, Physical Anthropology, 1977
Ph.D., Course work, University of Tennessee, 1979

Professional Affiliations

American Association of Physical Anthropologists
Human Biology Council
Society for the Study of Human Biology
American Dermatoglyphics Association
International Dermatoglyphics Association

Employment

1981-Present: Cultural Resource Services, Inc. Director.

--Marketing Agent. Market potential clients needing cultural resource services.

--Senior Archeologist. Serve as principal investigator on all cultural resource projects and assume responsibility for project completion and report content.

--Field Director. Serve as supervisor of archeological surveys, reconnaissance surveys and testing projects.

1. Principal Investigator. Evaluative testing at Sites 22 MO 676 and 22 MO 677, Tennessee-Tombigbee Waterway Channelization Project, Monroe County, Mississippi.
2. Principal Investigator. Cultural Resources, Biotic Communities and Endangered Species Survey at the Tom B. David Airport, Gordon County, Georgia.
3. Principal Investigator. Archeological resource assessment of water system improvements, Coweta County, Georgia.
4. Principal Investigator. Cultural resource assessment of sewerage and water systems improvements, Haralson County, Georgia.

1980-1981: Soil Systems, Inc., Marietta, Georgia. Archeologist.

1. Field Assistant. Archeological testing at the Rock House, McDuffie County, Georgia.
2. Field Director. Archeological survey and testing in the Wrightsboro community, McDuffie County, Georgia.
3. Field Director. Archeological reconnaissance survey proposed Georgia Kraft Mill, Elbert County, Georgia.
4. Statistical Consultant. Analysis of archeological materials from Lake Hartwell and Clark Hill Lake restroom facility sites.
5. Field Assistant. Elisha Winn House archeological testing, Gwinnett County, Georgia.
6. Principal Investigator. Archeological survey of proposed sewer line corridors and treatment plant site, Wilson County, North Carolina.
7. Field Director. Archeological survey of Lake McIntosh basin and water line corridors, Coweta and Fayette Counties, Georgia.

8. Field Director. Archeological survey of a selected 201 facility site, Calhoun, Georgia.
9. Field Director. Archeological survey of the proposed 10MW generating station site, Yancey County, North Carolina.
10. Field Director. Archeological survey of proposed rapid infiltration waste treatment facility site, Pierce and Ware Counties, Georgia.
11. Field Assistant. Archeological survey of pipeline right-of-way; Carroll, Howard, and Ann Arundel Counties, Maryland.

1979-1980: University of Tennessee, Knoxville, Tennessee. Archeologist.
1. Archeological Field Supervisor, Tellico Dam above-pool survey, Industrial Park Area II.
2. Archeological Field Assistant, Tellico Dam below-pool survey. Additional excavational experience at Jones Ferry site on Little Tennessee River.
3. Trainee in human cytogenetic techniques.
4. Teaching Assistant in introductory anthropology courses.

1977-1978: Fels Research Institute, Yellow Springs, Ohio. Research Assistant.

1976: University of North Carolina, Greensboro. Physical Anthropologist and Archeological Field Supervisor in Jalisco, Mexico, excavations.

1975: Summer University of Tennessee, Knoxville. Archeological Field Technician/Volunteer. Assisted in the summer excavation of the Toqua village-mound complex and surrounding sites in Monroe County, Tennessee.

1975: Spring Florida Junior College, Jacksonville. Archeological Field Assistant/Volunteer. Assisted in supervision and excavation of shell midden in Jacksonville Beach, Florida.

1974-1975: University of Georgia, Athens.
1. 1975. Archeological Field Technician/Volunteer. Assisted with the survey of floodplain areas along the Oconee River near Madison, Georgia.
2. 1974. Archeological Crew Chief. Involved with supervision of excavations at the King Site, Floyd County, Georgia.

1972-1973: Shorter College, Rome, Georgia.
1. Archeological Field/Laboratory Technician. Involved in archeological fieldwork associated with the King Site, Floyd County, Georgia.
2. Archeological Survey/Field Technician. Conducted exploratory survey work on Ossabaw Island, Georgia.
3. Archeological Survey/Field Technician. Conducted exploratory survey work on Rocky Mountain in Floyd County, Georgia.
4. Volunteer Laborer. King Site, Floyd County, Georgia.

1971-72: Union Camp Corporation, Jacksonville, Florida. Laboratory Technician.

ROBERT STEPHEN WEBB

Publications/Manuscripts

Webb, R. S. The Koch site: skeletal analysis and interpretation. Department of Anthropology, University of Tennessee, Knoxville.

Webb, R. S. The Dalton tradition in the Southeast: a critical overview. Department of Anthropology, University of Tennessee, Knoxville.

Webb, R. S. Communication within a troop of Papio papio. Knoxville Zoological Park, Knoxville, Tennessee.

Webb, R. S. Sexing the subadult illium: a multivariate technique. Department of Anthropology, University of Tennessee, Knoxville.

Webb, R. S. and J. B. Mountjoy. Skeletal remains from Tomatlan 25 and Tomatlan 5. University of North Carolina, Greensboro. Monograph in preparation.

R. L. Jantz and R. S. Webb. Evidence for genetic variation in the control of development. University of Tennessee, Anthropology Department, Knoxville, Tennessee. Amer. J. Phys. Anthropol., In press.

R. L. Jantz and R. S. Webb. Dermatoglyphic asymmetry as a measure of canalization. Annals of Human Biology. In press.

R. L. Jantz and R. S. Webb. Population variation in dermatoglyphic directional asymemtry. Paper presented at 1980 meetings of American Association of Physical Anthropologists.

Webb, R. S. and D. Glassman. Technical note: a method for the removal and preservation of the volar pads of small primates. University of Tennessee, Anthropology Department, submitted to the American Journal of Physical Anthropology.

Webb, R. S. Identification of epigenetic relationships between dermatoglyphic and dental variables using canonical correlation analysis.

Webb, R. S. and D. Owsley. Classification effectiveness of dental sexing discriminant functions. Tulane University, New Orleans, Louisiana.

Webb, R. S. Racial variation in the fetal growth of deciduous tooth buds: a factor analysis of partial regression matrices. Submitted to the Annals of Human Biology.

Contract Reports

1981: With Thomas C. Mather. "Cultural resources, biotic communities and endangered species survey at the Tom B. David Airport, Gordon County, Georgia."

1981: "Cultural resource assessment proposed water system improvements, Senoia, Coweta County, Georgia."

1981: "Archeological resource assessment proposed sewerage and water systems improvements. Tallapoosa, Haralson County, Georgia."

1981: With Patrick H. Garrow and A. Friedlander. "Intensive archeological survey and testing in the Wrightsboro community, McDuffie County, Georgia."

1981: With F. Geshling, R. Jacobs and J. Stuhrenberg. "Archeological, botanical, and wildlife survey proposed water system improvements Fayette County, Georgia."

1981: With S. H. Savage. "An archeological survey of proposed restroom facility sites, Lakes Hartwell and Clark Hill, Georgia, and South Carolina."

1981: "Archeological reconnaissance survey proposed Georgia Kraft Mill. Elbert County, Georgia."

1980: "An archeological survey of proposed sewer improvements, Stantonsburg to Saratoga, Wilson County, North Carolina."

1980: With Patrick H. Garrow. "An archeological survey of the proposed 10 MW generating plant site, Yancey County, North Carolina."

1981: With Patrick H. Garrow. "Cultural resource survey, proposed rapid infiltration waste treatment facility site, Pierce and Ware Counties, Georgia."

STEPHEN H. SAVAGE

Education

B.A., The Cincinnati Bible Seminary, Cincinnati. Ancient Near Eastern Studies, 1978

Employment

1981-Present: Cultural Resource Services, Inc. Atlanta, Georgia. Archeologist. Field Assistant. Evaluative testing at sites 22 MO 676 and 22 M 677, Tennessee-Tombigbee Waterway Channelization Project, Monroe County, Mississippi.

1978-1980: Soil Systems, Inc., Marietta, Georgia. Archeologist.

1. Field Director and principal author. An archeological survey of the Marietta First Baptist Church retreat at Lake Allatoona, Cherokee County, Georgia.
2. Field Director and principal author. An archeological reconnaissance of the proposed Tired Creek State Park, Grady County, Georgia.
3. Field Assistant and principal author. An archeological reconnaissance of the site of a proposed Kimberly-Clark deinking pulp mill and sanitary tissue manufacturing facility, Richmond and Burke Counties, Georgia.
4. Field Director. An archeological survey of the proposed channel modification of Little Lotts Creek drainage basin. Statesboro, Georgia.
5. Archeological testing and data recovery of nineteenth century structures and associated features on the site of the proposed civic center, Washington, D.C.
6. Field Director. Architectural and photographic documentation of the C. Ralph Smith House and the Fouche-Hardy farm complex, nineteenth century vernacular structures in the Texas Valley region of Floyd County, Georgia.
7. Field Assistant. Mapping and archeological testing of a temporary railroad related to the construction of Bartlett's Ferry Dam, Bartlett's Ferry, Alabama.
8. Excavations at 38BK245, an eighteenth to nineteenth century structure in the corridor of the Cooper River Rediversion Canal, Berkeley County, South Carolina.
9. Archeological testing and mapping of the Heath Creek floodplain, Texas Valley region of Floyd County, Georgia.
10. Excavations at 38BK75 and 38BK76, two eighteenth to nineteenth century slave cabin sites in the corridor of the Cooper River Rediversion Canal, Berkeley County, South Carolina.
11. Archeological testing and mapping of two cross station railroad corridor sites, Berkeley County, South Carolina.
12. Architectural and photographic documentation of five nineteenth century vernacular structures in the Texas Valley region of Floyd County, Georgia.
13. Assisted in preparation of The Edenton Snuff and Tobacco Manufacture for publication.
14. Archeological survey of the Lukama-Black Creek 201 facilities site, Wilson County, North Carolina.

15. Archeological testing and mapping at two prehistoric sites in the corridor of the Colonial Pipeline Company petroleum products pipeline crossings of the Etowah and Oostanaula Rivers, Floyd County, Georgia.
16. Archeological survey of three proposed road relocations associated with the Richard B. Russell Reservoir.
17. Archeological survey of the Colonial Pipeline Company petroleum products pipeline corridor crossings of the James River, Lynchburg and Appomattox Counties, Virginia.
18. Archeological testing of an historic cabin site in the corridor of the Wallace Dam-Eatonton Transmission Line, Putnam County, Georgia.
19. Archeological survey and testing at the John H. Kerr Reservoir, Virginia and North Carolina.
20. Archeological testing at the site of the proposed Rockport Power Plant, Rockport, Indiana.

1976-1977: Smithsonian Institution.

1. Systematic archeological survey of thirty square kilometer units in three different topographic zones around Tell Jemmeh, Israel.
2. Excavation of structures associated with an official Assyrian building of the seventh century, B.C. at Tell Jemmeh.
3. Excavation of Late Bronze and Iron Age fortification walls and structures associated with a large Late Bronze Age public building at Tell Jemmeh, Israel, with the Old World Anthropology Department.

Manuscripts

Savage, S. H. 1977. A preliminary investigation into the problem of harmonizing the biblical date of the Exodus with the findings of modern archeology.

Savage, S. H. 1977. The development of the walls of Jerusalem from the city of the Jebusites to the present.

Savage, S. H. 1978. Tell Jemmeh and Old Testament history.

Savage, S. H. 1978. B. A. Thesis. Two years of archeological field study at Tell Jemmeh.

Savage, S. H. 1978. "To pass through the fire," a preliminary investigation into the practice of infant sacrifice in the ancient Near East.

SSI Contract Reports

1981: With R. S. Webb. "An archeological survey of proposed restroom facility sites, Lakes Hartwell and Clark Hill, Georgia and South Carolina."

1980: With P. Garrow. "An archeological survey of the Marietta First Baptist Church campground site, Cherokee County, Georgia."

STEPHEN H. SAVAGE

1980: With P. Garrow. "An archeological reconnaissance of the proposed Tired Creek State Park, Grady County, Georgia."

1980: With P. Garrow. "A cultural resource reconnaissance: Kimberly-Clark Corporation deinking and sanitary tissue manufacturing facility, Augusta, Georgia."

1980: With P. Garrow, et al. "An archeological survey of the John H. Kerr Reservoir, Virginia and North Carolina."

1980: With P. Garrow, J.Kellar, and J. Bernhardt. "Archeological investigations at the Low Ridge (38BK372) and Deer Field (38BK373) sites, Cross Generating Station, Berkeley County, South Carolina.

1979: With P. Garrow, G. M. Watson, and J. Bernhardt. "Archeological survey and testing of proposed petroleum products pipeline river crossings on the Etowah and Oostanaula Rivers, Floyd County, Georgia."

1979: With P. Garrow and R. Warner. "An intensive archeological survey of three proposed Georgia state road relocations in the proposed Richard B. Russell Reservoir."

1979: With P. Garrow and T. Wheaton. "Wallace Dam-Eatonton transmission line corridor, archeological survey, Putnam County, Georgia.

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